LINCOLN COLLEGE

FARM PLANNING AND BUDGETING MANUAL - 1967-68

I N D E X

FARM PLANNING AND BUDGETING

Introduction

Farming has become a very complex business in recent years and it requires careful planning if a farmer is to obtain the best results over a period of years. Large scale technological changes in methods of production since the Second World War together with the lower prices for farm products experienced in recent years have focussed much more attention on budgeting.

When one is starting farming or when new techniques and prices require major adjustments to be made in farming operations, a well thought out plan and budget is of great assistance in combining together the various farm enterprises and practices into a more profitable system. A budget is a formal device for planning, usually on an annual basis, the various crops and livestock to be produced. It allows one to determine the most profitable alternatives and combination of enterprises, and the best methods to use in production.

How then does one go about farm planning? A haphazard approach is unsuitable. It is necessary to approach farm planning in an orderly fashion if reliable results are sought after. The first step usually is to make a complete inventory of the resources available. Where a budget is drawn up after writing a Property Report and physical side of the inventory - soils, crops and livestock - will already have been covered. For this reason the budget usually opens with a statement of the total capital involved in the farm business at current market values.

Total Capital Involved

(a) Land and Buildings

Where a recent Government Valuation is available this is probably the best guide there is to the overall value of the property. If the Government Valuation is three or four years old then some adjustment of the figures may be necessary. This should be done in the light of the movement in land values since its release and include any major capital improvements made on the farm since the last Valuation. The Unimproved Value is useful in assessing Land Tax where this is not known but the important figure is the Capital Value of the property as a whole.

For budget purposes this is split up between Land and Buildings. If varying grades of land are found on the property then the Land value may be split up into several sections valued differently, the total of these summing to the overall Paddock Value. The Capital Value is usually also expressed as a figure per acre of the farm, and per Stock Unit carried on the farm or per unit of production (e.g. per lb butterfat) for comparative purposes.

(b) Stock

The numbers to be used in assessing capital tied up in stock should include only the normal breeding animals and replacements which will be carried. Thus fattening lambs or cull boner dairy cows still on hand when a property was visited in April would not be included in Capital Stock. The values used per head should be autumn clearing sale of Ewe Fair values interpreted on a reasonably conservative basis. As stock numbers are written down the overall carrying capacity in stock units can also be determined.

(c) Plant

Valuations of plant should also be made on the basis of local clearing sales interpreted conservatively. The up-to-date price list for new equipment is very useful in assisting with these assessments.

(d) Working Capital

This is a part of the necessary capital needed to run the property but is often forgotten by people when purchasing a property. On sheep farms and certain types of horticultural properties (e.g. tobacco) income is concentrated in one part of the year but expenses must be met throughout the year and money for this purpose must either be set aside or borrowed. On dairy properties income is fairly evenly spread and this difficulty is not met to the same extent.

Working capital is very largely provided by stock firms and banks but even if the farmer provides his own he is entitled to consider it part of the capital involved. With stock firm and bank advances interest is charged on the day to day balance of the account hence the average level of the advance is the working capital figure required for budget purposes. It should not be forgotten however that some farming enterprises reach a peak of advances at certain times of the year much greater than their average level. This may well present financial problems which are not immediately obvious when the average figure is assessed.

Working capital requirements are difficult to assess accurately. Each property and each farming type tend to have their own individual characteristics. The table below presents an average picture only. It is constructed by considering the working capital requirements as a percentage of the value of land, buildings, stock and plant.

Table I - Working Capital Requirements of Various Farm Types

Farm Type	Percentage of Value of Land Buildings, Stock and Plant
Dairying (Intensive)	2%
Dairying and Mixed	3%-4% depending on comparative size of dairy enterprise
Sheep and Cropping	4%-5% depending on amount of crop and small seeds
Sheep (Intensive Fat Lamb)	5%
Sheep (Hill Country Store)	6%
Poultry	5%
Market Gardening	5%-10% depending on spread of sales
Orchard or Nursery	10%-15% " " " " "
Tobacco and Hops etc.	10%-15% " " " " "

At the end of the set out of capital a summary is usually made showing the total capital involved in the farm. This figure is used later to assess efficiency and it is a very useful guide for later work on farm finance.

Labour Available

The assessment of capital involved above covers the resources of land and capital. The other resources used in any farm business are labour and management. Management is not able to be inventoried objectively like the other resources though the whole tenor of the farm plan will be tailored to the managerial abilities of the individual farmer. The assessment of management is usually the subject of a separate report but quantities of labour available and required should be assessed for the budget

In some overseas countries this labour intentory is detailed for each month of the year but so far in New Zealand, because of a lack of available information, the labour inventory is assessed in terms of man days per year only. This is reasonably satisfactory for sheep and dairy farms where maintenance work can be fitted into slack periods but it is not suitable for intensive cropping or horticultural enterprises where there are marked seasonal peaks in labour requirements.

There are three aspects of the labour situation which must be thoroughly examined. The first is the conversion rate to use in assessing youthful, inexperienced or female labour in terms of Man-Days, (Man-Day being defined as the work done by the average experienced adult farm worker in a normal 8 to 10 hour day). Obviously this will tend to vary greatly with individual workers and only an average can be assessed. Even this is rather an arbitrary basis but it does take account of both age and years of experience though these factors vary in importance with the type of job being undertaken.

Table II - Conversion Factors for Youthful & Female Labour in Man-Days

Ages	Male				Female			
	Past experience in years				Past experience in years			
	0	1	2	3 +	0	1	2	3 +
15 & under 18	0.6	0.7	0.8	-	0.4	0.5	0.6	-
18 & over	0.7	0.8	0.9	1.0	0.5	0.6	0.7	0.8

The second aspect of the labour situation is the number of man days of work per year which can be expected from this average experienced adult farm worker. In general on sheep and agricultural farms the figure could be taken at 280 Man-Days per year and on dairy farms at 320 Man-Days per year with other farming types being somewhere in this range. These figures would normally apply to owner-operators as well as employed labour but it may be necessary to modify them in certain cases where the owner-operator spends only part of his time on farm work because of age or service on community organisations. Experience and knowledge of the individual farm setup concerned are the best guide here.

Deficiencies in the normal permanent labour available may be offset in a number of ways. Very extensive mechanization is one alternative while the employment of contractors or casual labour or farm labour scheme labour are other alternatives. Another possibility is the part time employment of family labour (wife and/or children) on certain routine tasks such as looking after poultry or feeding calves and pet lambs.

The third main aspect of the labour situation is concerned with the labour requirement in Man-Days per year of the various classes of livestock and types of crop. In the figures set out below (which can only be considered as tentative until research results are available from Farm Surveys) an attempt has been made to include an allowance for normal farm maintenance work in the figures quoted. Where any capital development work is undertaken this must be considered separately. The labour requirement figure can only be considered as an average one since it will tend to vary considerably with the degree of mechanization of the property, the amount of contract work the farmer employs and the organizational ability of the farmer. In the case of livestock figures the labour allowance includes that necessary for the production of normal acreages of hay, silage, winter and fattening crops.

Table III - Labour Requirements of Various Classes of Stock and Types of Crops

(a) Class of Stock	Man Days per Year
Town Supply Dairying (South Island)	1 per Stock Unit (Winter basis)
Town Supply Dairying (North Island)	¾ " " " " "
Seasonal Dairying (South Island)	1 " " " " "
Seasonal Dairying (North Island)	¾ " " " " "
Pigs (Labour based on Pork & Bacon Prodn)	6 " Breeding Sow
Stud Sheep Farming	½ " Stock Unit
Intensive Fat Lamb Prodn (South Island)	⅕ " " "
Average Fat Lamb Production	⅓ " " "
Store Sheep	¼ " " "
High Country Store Sheep Production	1/5th " "
Beef Cattle	1/6th " "
	1/10th " "
Poultry (Intensive Egg Production)	¼ per Laying Bird

(b) Type of Crop	Man Days per Year
Cereal & Pulse Crops & Summer Fallow	1¼ per acre
Ditto - on Light Land	1 " "
Small Seeds	½ " "
Oats for Chaff	5-6 " "
Potatoes (varies with yield of crop & grading required)	8-10 " "
Tobacco	40 " "
Orchard (Pip or Stone Fruit)	50 " "
Market Gardening - Intensive	50 " "
Market Gardening - Extensive	20 " "
Nursery also Small Fruits	100 " "
Tomato Growing under Glass	1000 " " of glass

Stock Performances and Stock Reconciliations

Having set out the basic resources being used on the farm the next thing to consider is the productivity of the stock which one proposes to run. This in turn is tied to the level of feeding and both must be considered together in practice though they appear in sequence in the budget. In constructing a budget for a twelve monthly period it is necessary to isolate the total production for the year in question. This is done in a stock reconciliation which sets out -

1. the number of stock in the varying age groups which are on the property at the beginning of the period (usually taken at 1 July)
2. the numbers of stock bred or bought during the period
3. an estimate of the deaths likely during the year
4. an estimate of the numbers of stock likely to be killed for the house or for dog tucker during the year
5. the numbers of sale stock disposed of during the period
6. and from these figures then deduces the stock which remain on hand in each age group at the end of the period. An example of this is presented overleaf.

From the sales column of the stock reconciliation it is then possible to extract sale stock numbers for the year which are used in estimating gross income for the year. Similarly from the stock purchases column the necessary figures are extracted to be used in calculating gross expenditure.

Where stock numbers are static this reconciliation will give the normal annual numbers of stock bought and sold but where stock numbers are being increased a false picture of unusually low annual sales or high annual purchases will be obtained. Conversely where stock numbers are falling the opposite effect will occur and annual income as calculated in the Budget will be artificially high. To eliminate these effects it is necessary to follow a similar plan to that used by accountants in constructing annual accounts.

One of two procedures may be followed to eliminate this discrepancy when calculating real nett income for an estimation of earning capacity:

(a) The extra stock numbers in each age group can be valued at the figures used for stock values in the original estimate of capital involved and the total figure so obtained is then added to the nett budgetary surplus to get an adjusted figure for calculation or,

(b) The extra stock retained can be sold in a hypothetical calculation at the figures obtained for other sales in each age group and the total return from these extra hypothetical stock sales is then added to the nett budgetary income.

In the case of decreases in stock numbers one of the same procedures would be followed but the figures obtained would be deducted from the budget surplus. (See Stock Adjustment Section of Budget).

Sheep Performances

Lambing Percentage

There are two common methods of calculation:

1. $\frac{\text{Number of Lambs Docked}}{\text{Number of Ewes Put to Ram}} \times \frac{100}{1}$ less sales prior to lambing

2. $\frac{\text{Number of Lambs Docked}}{\text{Number of Ewes alive at Docking}} \times \frac{100}{1}$

The first method is the more usual and the second method is common among high country farmers. The first is the only true basis and students should be careful to obtain and calculate the correct figure on each property.

Mortality

An average figure for a ewe flock on low country is 4 to 5 per cent (usually 5 per cent for budget work). In hard country death rates become much higher and less regular from season to season. Deaths in lambs are irregular. Evidence suggests that they are of the order of 15 per cent of the total ewe flock on Plains land between dropping and docking and there is a big field here for better farm management. In budget work this loss is neglected and death rates are considered from docking to sale. Store lambs are normally sold at weaning and fats partly off mothers and partly off feed. Average death allowances are 2-3% for stores and 3-4% for fats.

Lambing Survival

A useful budget approach is to include deaths from docking to sale in a blanket calculation of a lambing survival percentage known as "Percentage Survival to Sale or Flock".

Flock Replacements

The useful life of a breeding ewe varies considerably depending on the type of country on which it is being carried. Eventually ewes must be culled to breed on easier country, or (apart from a few used for dog tucker) sent to the freezing works. It is necessary to make provision for replacement of the total annual loss from the flock (which includes deaths as well as culls) if static flock numbers are to be maintained.

Age Ear-Mark and Cast-for-Age

On many hill properties an age ear-mark is applied at docking as well as the registered ear-mark. Such properties usually sell cast ewes as "guaranteed Four Year Olds" or "Guaranteed Five Year Olds" meaning they have produced 3 and 4 crops of lambs respectively and these sheep command a premium at ewe fairs. Other hill properties discard solely on an inspection of the mouths in the autumn and these lines command prices in direct relation to their mouths and general appearance. In many cases there is doubt as to the genuineness of the title "Four Year Old" or "Five Year Old" given to these lines at ewe fairs or main saleyards.

Culling

It is usual to cull to some extent in hill breeding ewe flocks using Romney, Corriedale or Half-Bred rams and unusual to cull much in fat lamb flocks using the Down type of ram. Culling is heavy in ewe lambs and 2 tooth ewes. Usually total numbers of ewe lambs are sufficient to allow fairly heavy culling in selection of ewe lambs to go into the winter and culls will have a ready sale as ewe lambs to Plains buyers. Even so it is normal to take at least 110% of number of 2 tooth ewes plus deaths into the winter as ewe hoggets and often 120 or 125%. Ewe lambs winter differently and for this reason it is desirable to be able to cull to some extent as 2 tooth ewes the following autumn. These cull 2 tooths are sold in truck lots at ewe fairs and often bring high prices.

In large ewe flocks on hill country it is the practice to cull in the autumn at the 4, 6 and 8T stage for such things as bearing trouble, bad udders, poor constitution etc., and small lines of 4, 6 and 8T ewes may be offered at ewe fairs. Usually these are a particularly bad buy for Plains farmers.

Home Killing and Dog Tucker

On sheep properties an allowance of ½ a sheep per household per week is an approximate guide. Where single men are employed this allowance should be stepped up. It is usual to carry over cull lambs for house meat but wether hoggets may be bought. On small properties dogs will be fed on household scraps, offals from home killings and an occasional old ram or ewe. On larger holdings more dogs are needed and a proportion of old ewes will be killed for dog tucker.

Rams

It is usual to purchase rams as "one-shear" at local ram fairs. Ram fairs are stud or flock and the average farmer purchases at "flock" fairs. Rams will last "on average" 4 breeding seasons and are usually disposed of by killing for dogs. The usual allowance is 5 per 200 ewes with more rams on harder country and perhaps as low as 1 per 100 ewes on the best flats and lowlands where the country is good and rams are tested by a veterinary surgeon before the season starts.

Sheep Reconciliation and Methods of Calculating Annual Draft Necessary to Maintain the Ewe Flock

It is essential in any budgetary estimate to state the number and performance of the sheep flock on the property and to tie this up in a stock reconciliation covering a twelve month period. An example is given here of a store sheep unit carrying 2,000 ewes and breeding own replacements. Ewes last 5 seasons and 100 per cent of lambs survive to weaning. Mortality in the ewe flock is 5 per cent and approximately 5 per cent of the 4, 6 and 8 tooth ewes and the 5 year ewes are culled each year. Twenty per cent of the 2 tooth ewes are culled before going into the ewe flock.

Procedure is as follows:

1. Establish the total loss from the ewe flock annually which is 5% deaths and 5% culling or approximately 200.

2. Ewes are kept 5 seasons so divide this total loss by 5 to get the approximate loss in each age group of the flock 200 ÷ 5 = 40. There are more sheep in the younger age groups but stock losses tend to increase with age after the 2T year so equal annual losses have been allowed.

3. In a flock being kept for 5 seasons, more than 1/5th of the sheep are 2T, more than 1/5th are 4T, approximately 1/5th are 6T, less than 1/5th are 8T and less again are 5 year olds because of deaths. The flock composition is found by taking 1/5th of the total flock and calling this 6T ewes, e.g.

   2,000 ÷ 5 = 400 6T ewes

   The number of sheep in each other age group is then found by adding or subtracting the appropriate number of annual losses per age group, e.g. number of 2T ewes =

   400 + (2 x 40) = 480 2T

4. Flock Composition:

480	2T ewes
440	4T ewes
400	6T ewes
360	8T ewes
320	5 year ewes
2,000	

5. Cull mixed age ewes for sale. These make up half of the annual loss per age group, e.g. $\frac{40}{2}$

∴ 20	4T ewes
20	6T ewes
20	8T ewes
20	5 year ewes
80	for sale annually

6. Cast for age ewes for sale are 320 less half the annual loss per age group (deaths only as they are all being culled). e.g. $320 - \frac{40}{2}$

   = 300 less say 20 for dog tucker
   = 280 C.F.A. ewes to sell

7. Two tooth ewes required are sufficient for 20% culling.

   ∴ $480 \times \frac{120}{100}$ = 576 of which 96 will be culled

   Ewe lambs to be kept at weaning to ensure this number of 2T ewes allowing 5% death rate in ewe hoggets.

   = $576 \times \frac{100}{95}$ = 607, say 610 and cull 99 2T

8. Lamb disposal: 100% survival to sale or flock

   ∴ 1,000 wether lambs to sell less 50 killers
   1,000 ewe lambs less 610 to flock gives 390 to sell
   less 20 culls for house mutton and dog tucker

   = 370 ewe lambs to sell

9. This stock performance will now be formally summarized in a stock reconciliation.

STOCK RECONCILIATION

Class of Stock	No. at 1st July	Stock bought	Natural Increases	Stock Sold	Deaths and Miss'g	Kill for House or D.T.	Transfers within flock	Sub-Total	Stock at 30 June
Wether Lambs	-	-	1000*	950	-	-	50	1000 1000	-
Ewe Lambs	-	-	1000*	370	-	-	630	1000 100	
Ewe Hoggets	630	-	630	99	31	20	480	1260 630	630
2T Ewes	480	-	480	20	20	-	440	960 480	480
4T Ewes	440	-	440	20	20	-	400	880 440	440
6T Ewes	400	-	400	20	20	-	360	800 400	400
8T Ewes	360	-	360	20	20	-	320	720 360	360
5 year Ewes	320	-	320	280	20	20	-	640 320	320
Rams	50	13	-	-	3	10	-	63 13	50
Killers	60	-	50	-	1	49	-	110 50	60
	2740								2740

* This is the number which survive to sale or entry to the home hogget flock.

10. Summary of Sales:

Wether Lambs:	Prime fat off the mothers	9%	= 90	
	Seconds " " " "	1%	= 10	
	Prime fat off Feed	50%	= 500	
	Seconds Fat off Feed	35%	= 350	= 950
Ewe Lambs				= 370
2T Ewes				= 99
Mixed Age Ewes (Culls)				= 80
Cast for Age Ewes				= 280

Summary of Sheep Killed:

49 Wether hoggets and 2T wethers for the houses
20 Ewe hoggets (some for the house, rest for the dogs)
20 Old thin ewes for dogs
10 Old rams for dogs

Wool Production

Adult sheep are usually shorn once per year, dry sheep in September-October and wet sheep after the dry shearing. Wet ewes may also be shorn pre-lambing (usually August) and this practice is growing in certain districts. The practice of shearing 3 times every 2 years (pre-lambing every second year) is also growing. In the South Island most sheep are first shorn as hoggets 13 months after birth although a proportion, especially Romneys, are shorn as lambs in November-December and January. This practice is more common in the damper districts and particularly in the North Island.

Crutching

Lambs which are not shorn are crutched in January-February. Ewes are crutched in June-July and may also be lightly crutched or "ring-crutched" before rams go out.

Yields and Main Classification

The main classification of wool is into fleece wool, bellies, pieces, necks and locks. In addition there are crutchings and often dags and dead wool. For budgeting purposes these last two may be neglected although they may be appreciable on big properties and when wool prices are very high.

A useful classification of wool is into fleece and oddments. An average weight of fleece wool from good ewes is 7.5 lb. Bellies will be about 0.5 lb, pieces about 1 lb or just under, necks 0.25 lb, and locks 0.1 to 0.2 lb. These last are often put in with pieces in the clips of small farmers. Ewe crutchings are of the order of 0.5 to 0.66 lb making a total of a 10 lb clip for the year. This is where a good class of sheep are fed well. As a guide it may be said that a few flocks have averaged 12 lb and some as low as $6\frac{1}{2}$ to 7 lb.

A Canterbury Plains ewe of the Corriedale or Half bred type would average a total clip of about 9 lb or just under.

Romney ewes would average $9\frac{1}{2}$ to 10 lb

Hoggets shorn as lambs would average 7 - 8 lb

Long woolled lambs clip about $2\frac{1}{2}$ - 3 lb

Lambs crutch about $\frac{1}{4}$ - $\frac{1}{3}$ per head

Budgeting Procedure

When quoting wool weights it should be clear that figures refer to numbers actually shorn and that weights include crutchings and do or do not, include lambs wool (if it is district practice to shear lambs).

Obtain shearing tallies by deducting $\frac{1}{2}$ to $\frac{2}{3}$ of the annual deaths, depending on the month of shearing, assess the wool weight per class of sheep and obtain the total wool yield per class of sheep, add the totals, then with the weighted price for the whole of the fleece clip assess the income from wool. Normally current quotations for the Average Grade of the major class of wool in the clip are a good guide to overall price per lb.

An example: No's at 1.4....	less deaths	shearing tally	Wgt/sheep including crutching	Total
1000 ewes	30	970	10 lb	9700
400 hoggets	6	394	7½ lb	2955
1050 lambs shorn		1050	2½ lb	2625
lambs crutched				
100 rams and killers	30	70	10 lb	700
	Total shorn	2484	Total Clip	15,980 lbs

BEEF CATTLE PERFORMANCE

Cattle are not a general feature of Canterbury Plains farming, but they are a characteristic feature on Banks Peninsula and in the foothills and appear to be on the increase in the back country. Banks Peninsula buys large numbers for fattening as do some farmers on heavier wet areas of the Plains. Values vary greatly from month to month and a close check should be made with current reports when doing budgets.

Calving Percentage

On places rearing store cattle an average calving percentage is 85. As the ruggedness of the country increases this percentage quickly decreases down to about 60%. Harsh winter conditions will lower the percentage as well.

Deaths

A usual figure is 2-3%. This varies too with the nature of the country being especially high where there are bluffs. It may be as high as 5-6% in years with a hard winter and late spring.

Replacements

A breeding cow will usually produce about 6 calves. Heifers are mated to calve down at 3 years old. About 20-22% of the number put to the bull are usually 2 year old heifers. This allows for some not getting in calf. Bulls last about 4 seasons on average.

Sale Stock

Weaners - A number of farms on better country follow this practice of selling weaners and keeping the maximum number of cows. All weaner steers and about half the weaner heifers will be sold here.

Yearlings Some farmers hold their weaners over the winter and sell in the spring to fat lamb farmers. All the steers and 75% of the heifers will be sold in this case.

2 and 3 year old Stores

This is the usual practice on the regular hill country in both islands. No weaners or yearlings are sold. All the 2 and 3 year old steers are marketed at the regular spring fairs.

The 2 year old heifers will be sold either fat, or forward to lowland farmers some for breeding and some for fattening. In this case both steer and heifer prices are fairly closely related to export schedule prices in the North Island.

Fat Cattle For the greater part of the year in the South Island it is a butcher's market, although with more topdressing cattle are becoming more important in the South Island. The present export schedule covers N.Z. except for Southland where a yield grading system is operated based on the yield of red meat per carcase. Export schedules are printed in the daily press each Monday and in the monthly Journal, The Meat Producer.

Stock Reconciliation

As an example of the usual set of a stock reconciliation for beef cattle a herd of sixty breeding cows and replacements selling 2 year old store cattle has been adopted. Cows last six breeding seasons apart from an odd death or cull and calving percentage is 84%. Overall death rate is 2%.

Class	No. on hand 1.7.	No. bought	Nat. increases	Sales	Deaths	Killers	Trans. within flock	Sub-Total	Est. on hand 30.6
Steer Calves	-	-	25	-	-	-	25	25 25	-
Heifer Calves	-	-	25	-	-	-	25	25 25	-
1 yr old Steers	25	-	25	-	1	-	24	50 25	25
1 yr old Heifers	25	-	25	-	-	-	25	50 25	25
2 yr old Steers	24	-	24	24	-	-	-	48 24	24
2 yr old Heifers	25	-	25	12	1	-	12	50 25	25
Breeding Cows	60	-	12	11	1	-	-	72 12	60
Bulls	2	1	-	1	-	-	-	3 1	2
	161								161

Summary of Sales:

24	2 year old store steers
12	2 year old breeding heifers
1	cull fat 3 year old heifer
1	cull boner bull
10	cull breeding cows
48	

Dairy Stock Performances

(a) Cow Production

1. Butterfat production

Work from butterfat figures supplied to the factory not from herd test figures. For budget purposes obtain from the farmer as many years factory production as possible, the number of cows and heifers to be milked that season and estimate the number of effective milkers, assess factory fat per cow and compare the total production with previous production, taking due regard to the season and also efficiency, past and present of the management of the farm.

2. Town milk production

The above remarks also apply to town milk producing properties. Here the concept is total gallons sold. The main difficulty in assessing gallons per cow, is to obtain the effective number of cows milked in the year. A useful method is to total the number of cows milked per month for the whole year. A Town supply cow usually milks for $9\frac{1}{2}$ months so this total is then divided by 9.5.

(b) Herd Replacements

1. Herd wastage

An analysis of wastage and culling figures produced in 1955-56 by the N.Z. Board are as follows:

Sold for dairying	1.88% of herd
Low production	6.57
Accident and injury	.59
Old age and sundry	1.98
	11.02
Diseases	6.76
Total Wastage	17.78%

For budgeting purposes 15-20% could be taken, the figures assessed after obtaining all the pertinent factors about the farm, the management and the district. Cull cows are invariably sold as boners; for prices see Beef Schedule.

2. Calving percentages (Calves produced per 100 cows and heifers wintered)

N.Z. calving percentage averages 90% (5-7% of cows fail to get in calf while a further 3-5% cows mated abort).

Approximately 4% of the calves born die at birth, or are born dead, this leaves an effective calving percentage of 86%.

3. Number of heifers available as replacements

In effect this is 43 heifer calves available for rearing, but it includes late calves and free martins which are not suitable and are disposed of as bobby calves, they amount to approximately 20%. Thus you have left 32 heifer calves suitable for rearing. Losses from one month to 2 years approximate 10% and of those which survive to the 2 year old stage 5% prove not in calf, thus we eventually have 27 heifers that will calve into the herd. As approximately 20% are required to maintain the numbers in a herd, it can be seen that there are 7 heifers which can be sold for dairying or need not have been reared. It is usual for a farmer to ensure he has sufficient replacements by having the number of yearling heifers equivalent to 25% of his milking herd.

4. Bulls

The average herd life of bulls is $4\frac{1}{2}$ years, this means that having been used in the herd for the first time when 15 months old the average bull would be 6 years old when culled.

The main causes of loss or disposal are, prevention of inbreeding, poor results from progeny, sterility, accidents, and because of not being able to manage a bad tempered beast. The increasing use of A.B., plus the high remuneration received from a potter bull in recent years has tended to reduce the active life of bull in a herd.

(For potter bull realisations see Beef Schedule)

5. Stock Reconciliation: (Seasonal Supply Herd)

An example of the usual set out of the stock reconciliation for a normal seasonal supply dairy herd is presented below. The herd comprises 80 cows and replacements. Effective milkers number 74.

Class	No. on hand 1.7.	No. bought	Nat. increases	Sales	Deaths	Killers	Trans within flock or herd	Sub Total	Est. on hand 30.6
Heifer Calves	-	-	36	14	2	-	20	36 36	-
Bull Calves	-	-	36	35	1	-	-	36 36	-
Yearling Heifers	20	-	20	2	2	-	16	40 20	20
Milking Cows and Heifers	80	-	16	13	-	-		96 16	80
Bulls	2	-	-	-	-	-	-	2 -	2
	102								102

Summary of Sales: 49 Bobby Calves
2 2 year old in calf heifers
13 Cull cows
64

6. Stock Reconciliation: (Town Supply Herd)

Unlike the normal dairy reconciliation this has autumn born calves on hand to begin and end. It also differs in that the heifers are usually not calved down until aged $2\frac{1}{2}$ years. An example for an 80 cow herd which both breeds and buys replacements is presented below This is common practice since wastage is rather higher in town supply herds and less calves are usually reared since whole milk is being sold.

In effect the herd has been split into two - the spring calvers (30% of the total) and the autumn calvers (70% of the total). Note that the autumn calves go into the spring herd while the spring calves go into the autumn herd.

Class	No. on hand 1.7.	No. bought	Nat. Increases	Sales	Deaths	Killers	Trans within flock or herd	Sub Total	Est. on hand 30.6
Heifer calves (autumn born)	6	-	25	18	1	-	6	31 25	6
Bull calves (autumn born)	-	-	25	24	1	-	-	25 25	-
18 mth old heifers	6	-	6	-	1	-	5	12 6	6
Spring clvg cows	25	-	5	4	1	-	-	30 5	25
Heifer calves (spring born)	-	-	11	4	1	-	6	11 11	-
Bull clvs (spring born)	-	-	11	11	-	-	-	11 11	-
Yearling heifers	6	6	6	-	-	-	12	18 12	6
2 yr old heifers	12	-	12	-	-	-	12	24 12	12
Autumn Calvers (cows in milk)	55	-	12	9	3	-	-	67 12	55
Bulls	2	1	-	1	-	-	-	3 1	2

(c) Town Milk Production

The milk year operates from September 1st to August 31st. The price in any one particular year is related by a special formula to the guaranteed price for butterfat, it is computed by the Marketing Department who purchase the milk, on a guaranteed quota basis, from local producer associations. The system of payment for quota milk, quantities in excess of quota, penalties for deficiencies, standards that town milk have to comply with, and seasonal payouts will become apparent when students visit town supply farms.

1. Quota Milk

The Marketing Department are guaranteed a daily quota supply by the local association, who in turn organise the obtaining of this quantity by allocating to farmer suppliers a daily quota for the whole year. The farmer must take out shares in the association to become a supplier and his milking shed and stock must comply with certain standards as set down by the Health Department. Quotas are set on the average daily production from the farmer over the winter months from April to July. A new supplier when accepted usually gets a 30 gallon quota and this is usually increased by 5 gallons per year if it is satisfactorily filled.

2. Quantities in excess of Quota (surplus milk)

All milk produced on a town supply farm is taken by the local association, and the milk in excess of requirements is usually sent in from the receiving depot to a local dairy factory, where a lower price is obtained. In the spring months nearly all producers send in milk above their quota, but in other months of the year a proportion of the producers are unable to meet their full quota, whilst other farmers do have an excess supply, and it is in these months that this excess milk is accepted at full quota prices.

The acceptance of surplus milk varies with the seasons; in general in the past the Canterbury Dairy Farmers Ltd, paid out on the following basis:

September to January - Quota at quota prices, all excess at surplus milk prices.
February to March - All milk sent in was paid for at quota prices
April and May - Quota plus 20% of quota at quota prices, balance of excess milk at surplus prices
June to August - All milk sent in was paid for at quota prices

3. Calving Pattern and Analysis of Production

Because the seasonal production of milk is so important on a town supply farm it is necessary to estimate the likely pattern of production (quota and non-quota milk) on a monthly basis so that likely deficiencies can be remedied and income can be more accurately estimated. To do this a table showing cows calving, and numbers in each month of their lactation, is drawn up. In such a table cows calving means the number which actually calve down and enter the herd rather than total cows carried, (i.e. effective milkers). Another point to note is that if say 10 cows are calving in August then because some calve late in the month they will only be an effective 5 for the whole month.

Besides a knowledge of numbers of cows in milk each month and the month of lactation which they are in it is necessary to know the average production per cow per day in each month of lactation, to assess overall monthly production. The average Canterbury town supply herd produces and sells about 750 gallons of milk per effective cow. A good herd of Friesians well managed and fed should produce about 900 gallons per effective cow while one or two top herds are producing about 1050 gallons per cow. Lactation patterns of production in gallons per day per cow for each month of lactation are given below for each of these three levels of production.

Period	750 gals/cow	900 gals/cow	1050 gals/cow
1st month	3½ gals/day	4 gals/day	4½ gals/day
2nd month	4 " "	4½ " "	5 " "
3rd month	3½ " "	4 " "	4½ " "
4th month	3 " "	4 " "	4½ " "
5th month	3 " "	3½ " "	4 " "
6th month	2½ " "	3 " "	3½ " "
7th month	2 " "	2½ " "	3 " "
8th month	1½ " "	2 " "	2½ " "
9th month	1 " "	1½ " "	2 " "
10th month	1 " "	1 " "	1½ " "

In the spring months of September, October, November and December 5% should be added to the calculated total monthly production to allow for the spring flush.

The calving pattern outlined below as an example is of the 80 cow herd for which a stock reconciliation was constructed.

CALVING SCHEDULE

Month	Cows Calvg	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
July	-	-	-	-	-	-	-	-	-	-	-	-	-
August	14	-	7	14	14	14	14	14	14	14	14	14	-
Sept.	9	-	-	5	9	9	9	9	9	9	9	9	9
Oct.	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov.	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec.	-	-	-	-	-	-	-	-	-	-	-	-	-
Jan.	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb.	10	10	10	10	10	10	-	-	5	10	10	10	10
March	18	18	18	18	18	18	18	-	-	9	18	18	18
April	15	15	15	15	15	15	15	15	-	-	8	15	15
May	8	8	8	8	8	8	8	8	8	-	-	4	8
June	-	-	-	-	-	-	-	-	-	-	-	-	-
Year	74	51	58	70	74	74	64	46	36	42	59	70	60

From the calving schedule and the table of daily production one can quickly work out the total daily production and then multiply by days in the month obtain the monthly production. For July in the table above we have at the 900 gallons per cow level of production:

10 " x 3 (6th ") = 30
18 " x 3½ (5th ") = 63
15 " x 4 (4th ") = 60
8 " x 4 (3rd ") = 32

185 gallons per day

and 185 x 31 = 5735 gallons for the month

This information for each month is tallied up and inserted in a schedule of estimated milk sales. Using the information set out in sub sections 1. and 2. above together with price data for each period total production is divided between that sold at quota price and that sold at surplus price and is valued accordingly. A quota of 80 gallons per day is assumed.

SCHEDULE OF ESTIMATED MILK SALES

Month	Estimated Total Gals.	Gals. sold at Quota Price	Value $	Gals sold at surplus price	Value $
July	5,735	5,735			
August	5,920	5,920			
September	6,960	2,400		4,560	
October	6,770	2,480		4,290	
November	5,640	2,400		3,240	
December	4,600	2,480		2,120	
January	3,110	2,480		630	
February	2,515	2,515			
March	3,940	3,940			
April	5,760	2,880		2,880	
May	6,880	2,976		3,904	
June	6,360	6,360			
Year	64,190	42,566		21,624	

Pig Performance

Breeding Herds

The essential point to establish is the number of breeding sows to be carried in any one farming season. The herd will be in one of three states - static numbers or herd numbers increasing or decreasing. With static numbers it is fairly easy to establish the essential budgetary points of number of breeding animals required to maintain the herd and the number of chopper sows for sale at the end of their breeding life. The boar situation can be determined similarly. With changing herd numbers attention to the age of the sows is important and common sense provides the answer. Sows last on average about four years (7-8 litters) while boars are usually disposed of after three years because of difficulties with inbreeding.

Sale Numbers

The essential points are the number of litters per year, the litter size and the mortality. The answers are essentially an assessment of the inclinations and standard of husbandry of the pig owner. The performance figures given below are taken from a Pig Council Survey conducted in 1950. In general the farmers in the survey would be above average in pig management.

Sow Cow Ratio

The Survey average was 1 sow per 9.8 cows. In general efficient levels of production could be considered to be as follows:

Weaner production	1 sow per 4 cows
Porker production	1 sow per 6 cows
Baconer production	1 sow per 10 cows
Mixed Porker & Baconer	1 sow per 8 cows

Pigs born per Litter

The average figure was 9 piglets born per litter

Pigs weaned per Litter

The average figure was 7 piglets weaned per litter

Litters per Sow per Year

The average figure was 1.8 litters per sow per year

Pigs Sold per Sow per Year

The average figure was 12 pigs sold per year.

With the increasing trend towards specialist pig production not reliant on skim milk feeding added management improvement has resulted and in this situation average production has improved. Figures of 2 litter per sow per year and 14 pigs sold per sow can reasonably be expected.

In general losses up until weaning amount to 20-25% of the total number of pigs born with post weaning losses about 3-5% of the total number of pigs born. Litters per sow range from 1.6 to 2.0 on average per year depending on levels of efficiency. The number of pigs sold per sow over New Zealand as a whole calculated from A. &. P. statistics is only 10 so that it is obvious the Survey farmers are above average in their pig management.

Stock Reconciliation (Pigs)

As an example of a stock reconciliation for pigs the following situation is outlined. A farmer running 50 cows on cream supply has 8 sows producing almost all porkers. Efficiency is above average so that 9 pigs are born per litter and 7 are weaned.

The 8 sows produce 14 litters in the year and after allowing for post-weaning deaths 95 porkers are sold each year.

Class	No. on hand 1.7.	No. bought	Nat. Increases	Sales	Deaths	Killers	Trans within flock or herd	Sub Total	Est. on hand 30.6
Young Pigs	14	-	126	95	31	-	-	140 126	14
Breeding Sows	8	2	-	2	-	-	-	10 2	8
Breeding Boar	1	-	-	-	-	-	-	1 -	1

Pig Prices

The crux of the matter is supply and demand. Where the supply is insufficient to meet demand or is fluctuating relating to demand there will be a fluid price level set by auction prices in accordance with the level of these two factors. This is largely the case in the South Island Local supply is insufficient to meet demand and so auction prices at Addington and Burnside set the return to the producer. No study of these has as yet been made and students are directed to observe the prices in Wednesday's Press each week. For South Island budgets take 90 per cent of current Addington realisations for fat pigs. Store pigs must be interpreted according to the time of the year.

Feeding Standards for Livestock

In any integrated programme of production whether of livestock only, or of stock and crops in combination, it is necessary to be sure that adequate provision has been made for the livestock it is proposed to carry. Two aspects are involved here. On the one hand it is necessary to assess the probable amount of feed which will be grown on the property at different seasons of the year, and on the other hand it is necessary to assess the probable requirement of the livestock in these seasons and balance the stock requirement with the feed available.

This may be done in the highly accurate way adopted by the animal scientist by considering quantities of Digestible Dry Matter and Protein in the various feeds and balancing this with stock requirements (Refer Animal Nutrition - I.E. Coop). Because of the complexity of the method a simpler system which can only approximate roughly to the true position has been adopted for farm management work in New Zealand. This is the Stock Unit system which takes as its base the feed requirements of an average Romney ewe plus her lamb at the different seasons of the year. Other stock including cattle and horses are rated on this scale.

Some theoretical difficulties arise when doing this because the spread of feed requirements of the sheep and the dairy cow differ (see Table I below). Provided one remembers this fact which makes fat lamb production much easier than dairy production in areas having a summer drought (see comparative monthly pasture production columns in Table I) little practical difficulty should be met. Of course it is also necessary to remember the need for a balanced diet when assessing the place of the various supplementary feeds.

Table I Comparison of Monthly Stock Requirements as Percentages

	Standard Ewe flock	Standard Ewe with Twins	Jersey Herd	Friesian Herd	Beef Cattle Herd
January	5.1	4.3	9.0	6.1	10.6
February	5.1	4.3	8.6	5.1	10.7
March	5.3	4.4	8.2	7.4	5.9
April	5.4	4.6	7.8	8.6	5.9
May	5.6	4.8	6.2	9.3	5.9
June	5.8	4.9	5.2	8.6	6.0
July	7.0	7.0	7.5	8.6	7.3
August	10.8	11.5	9.0	9.3	8.1
September	13.3	15.0	10.0	9.7	8.8
October	14.3	15.8	9.7	9.7	10.0
November	14.3	16.0	9.5	9.2	10.3
December	8.0	7.4	9.3	8.4	10.5

Table II Comparison of Monthly Pasture Production as Percentages

	Canterbury Pasture (M-H)	Bay of Plenty Pasture
January	4.3	10.5
February	1.8	9.4
March	6.2	8.3
April	5.7	6.9
May	4.3	4.7
June	3.0	3.2
July	2.8	2.8
August	6.7	7.8
September	17.6	10.1
October	22.5	11.8
November	15.2	12.9
December	9.9	11.6

Table III Classification of Various Classes of Livestock in Ewe Equivalents

Class of Stock	Average Liveweight lbs	Intake of D.M. lbs	Ewe Equivalents		
			May-August	Sept.-Dec.	Jan.-April
Sheep:					
Ewe - B/L x Rom.	140	1430	1.1	1.1	1.1
Romney	120	1310	1.0	1.0	1.0
Corriedale	100	1180	0.9	0.9	0.9
Merino	80	1030	0.8	0.8	0.8
Hoggets - ewe	50 - 90	810	0.6	0.5	1.0
+ wether	80 - 90	740	0.6	0.5	1.0
Wethers M.A.	110 - 120	920	0.7	0.5	1.0
Rams	160	1080	0.8	0.5	1.0
Studs - ewes			1.25	1.25	1.25
hoggets			1.0	0.75	1.25
Cattle (1) Beef:					
Br. Cow	1000	8300	6.0	6.0	6.0
Heifer - weaner	300 - 600	4600	3.5	3.5	4.0
yearling	600 - 800	5200	4.0	4.0	4.5
2 yr old	800 -1000	6200	4.5	4.5	6.0
Steer - weaner	350 - 750	5200	4.0	3.5	4.5
yearling	750 -1100	6600	5.0	4.0	6.0
(2) Seasonal Dairying					
Jersey cow	800	9100	6.5	6	7
yearling			2.5	3	4.5
calf			-	-	2
bull			5	4	5
(3) Town Supply					
*Friesian cow	1200	11700	10+ (x3)	5+ (x2)	$+ (x2)
Heifer 2 yr old			10	5	$
1 yr old			3	4	$
Calf			-	2	$
Bull			5	4	6
Horses: Hacks			7	5	9

The above ewe equivalent classification is basically from an article by Professor I.E. Coop published in the "New Zealand Agricultural Science" Vol. 1, No. 3, Nov. 1965. The recommended rates for town milk supply dairying have been adjusted however to reconcile with subsequent Farm Management Research which takes into account such factors as high wastage of feed involved in winter milk production etc. Similarly, stud sheep have been correspondingly increased due to the scope required in stud sheep farming.

* Town Milk Supply Friesian cow is assessed as follows:

10 E.E. maintenance plus no. gallons milk per day multiplied by 3 during winter and by 2 spring-summer-autumn, i.e. 750 gallons autumn calver cow for May-August is

$$10 + (3\tfrac{1}{2} \times 3) = 20\tfrac{1}{2} \text{ E.E.'s}$$

\+ Wether hoggets - winter fattening May-August as 1 E.E.

The above figures should be regarded as approximations and in applying these E.E. factors effects of environment (wind, temperature, grazing pressure, etc.) must be borne in mind.

On rough hill country where cattle and wethers are used to control second growth the feed requirements are lower than those listed since the stock often lose weight then.

A point which should always be borne in mind in assessing probable feed available is the amount of seasonal variation from year to year in the district. In some areas such as coastal Southland this variation is fairly small - feed supplies are reliable - while in other districts like Canterbury and Marlborough the variation between seasons is extreme and must be allowed for by carrying extra supplies of hay as an insurance.

A rough guide to average feed availability from pastures and various crops is contained in Table IV below. Wherever possible it should be supplemented by detailed local knowledge of the district and the farm being budgeted.

TABLE IV - Value of Various Feeding Materials

Winter Feed (May - August)

Pastures (Canterbury)	S.U. per acre
Very good	2 - 2½
Fair - good	1½ - 2
Poor - fair	¾ - 1½
Very poor - poor	¼ - ¾

Autumn saved pasture	
Good	8
Fair	5
Poor	2

Roots	Per 1 ton	Per 1 ton
	Swedes or Pumpkins	1
	Chou moellier or kale	2
	Mangolds	1
	Fodder Beet	1½
	Sugar Beet	2
	Turnips	¾

Grain	Per 1 ton (2240 lbs)	
	Barley	18
	Oats	16
	Wheat	19
	Peas	18

Hay Per 1 ton	Per 1 ton
Good lucerne or clover hay	10
Good pasture or av. lucerne	8
Fair hay	5 - 7
Ryegrass straw	3 - 4
Pea straw	3 - 4

Ensilage Per 1 ton	
Very good	4
Good	3

Lupins S.U. per acre	S.U. per acre
Good	20
Fair	12
Poor	3

Italian ryegrass greenfeed S.U./Acre	
Good	20
Fair	12
Poor	3

Greenfeed oats, barley, ryecorn	
Good	10
Fair	5
Poor	2

If greenfeeds and A.S.P. are required for specifically Lambing Feed they should not be calculated as winter feed.

Lambing Feed

With early lambing there is special need for nutritive lambing feed, separate from winter feed provisions. A guide to feeding rates is:

New grass	4 - 5 acres per 100 ewes
A.S.P.	6 - 8 " " " "
Greenfeed oats or barley	6 - 8 " " " "

Spring-Summer Feed (September-December)

V.G. pasture	6 - 8 S.U. per acre
Good pasture	4½ 6
Fair pasture	3
Poor pasture	2
V.G. light land lucerne grasing pasture	4 - 5
V.G. light land sub. clover pasture	3 - 4
Fair light land sub. clover pasture	2 - 3
Poor light land run out browntop past.	1 - 1½
V.G. mixed cropping pasture (lot of S/sds)	10
Good mixed cropping pasture (moderate ")	7
Fair mixed cropping pasture (little ")	4 - 5

On mixed cropping units the area of small seeds is excluded from the areas available for grazing, but there is a certain amount of grazing from them until they are closed up.

Summer-Autumn Feed: (January - April)

On sheep farms little trouble is usually experienced in carrying stock at this period so a general feed calculation is seldom done. Special fattening feed is usually required for lambs as detailed below but the ewe flock can usually be maintained on pasture pickings plus some poorer quality hay in districts subject to drought.

On dairy farms, particularly in districts subject to summer drought this period can critically affect annual production so that adequate provision of supplementary feeds is necessary. Hay, ensilage, chou moellier and turnips can be taken at their winter values. Other feeds as follows:

Greenfeeds	Maize	2 S.U. per ton
	Millet	15-20 S.U. per acre
Pastures	Best irrigated pastures	8 S.U. per acre
	Good heavy land pasture	6 S.U. per acre
	Fair heavy land pasture	4 S.U. per acre

Fattening Feed

Rates based on the fattening of a lamb to 33 lb in a period 6 - 8 weeks, in an average Canterbury season.

	Lambs fattened per acre
Rape, kale and chou moellier	
Good	25 - 30
Fair	15 - 18
Poor	7 - 12
Pea stubble	2 - 4
Ryegrass stubble	2 - 3
White clover stubble	3 - 4
Wheat barley, oat stubble	1 - 2
Good pasture	5 - 6
Fair pasture	2 - 4
New grass and turnips	6 - 8
Lucerne (mature)	8 - 10

Feed Requirements of Pigs

Because pigs are usually hand fed on concentrates and skim milk whereas other stock forage for themselves on pasture most of the year a different system of calculating feed requirements has been adopted for pigs. This is the Meal Unit system which is based on 1 lb of Barley Meal = 1 Unit. Pig production must be carefully fitted to the seasonal availability of skim milk with most New Zealand pig enterprises to get maximum utilization of feed. (See Animal Nutrition - I.E. Coop). Provided this is remembered the following total requirements for various classes of pigs can be used satisfactorily.

TABLE V Meal Unit Requirements of Various Classes of Pigs

Boar	-	2000 M.U. per year maintenance
Sow	-	2000 M.U. per year maintenance + 900 M.U. per litter production ration
Weaners	-	30 M.U. covers necessary creep feeding until weaning if the aim is to produce weaners for sale
Porkers	-	250 M.U. covers total feed (including creep feeding) required for a pig to reach a liveweight of about 120 lbs at the age of four months.
Baconers	-	500 M.U. covers total feed (including creep feeding) required for a pig to reach a liveweight of about 200 lbs at the age of six months.
Stores	-	(a) 100 M.U. covers total feed (including creep feeding) required by a pig up to the age of 3 months if the aim is to sell light stores. (b) 120 M.U. per month will maintain a store pig over the winter if the aim is spring fattening (c) 250 M.U. additional would be required to fatten this type of pig to bacon weights (6 weeks fattening).

TABLE VI Conversion of Various Foodstuffs to Meal Units

Cereal Grains

Barley, Wheat and Maize	1 lb	= 1 Meal Unit
Pollard Bran or Pig Pellets	1¼ "	= 1 " "

Note: Oats are too fibrous for pigs

Protein Rich Foods:

Meat meal (good quality)	¾ "	= 1 " "
Meat and Bone Meal	1 "	= 1 " "
Peas and Pea Meal	1 "	= 1 " "

Milk and Milk Products

Skim Milk	1 gal.	= 1 Meal Unit
Whey	1½ "	= 1 " "
Skim milk powder	1 lb	= 1 " "
Buttermilk powder	1¼ "	= 1 " "

Roots

Fodder Beet (320 M.U. per ton)	7 lb	= 1 " "
Sugar Beet (450 M.U. per ton)	5 lb	= 1 " "
Carrots (280 M.U. per ton)	8 lb	= 1 " "
Swedes (250 M.U. per ton)	9 lb	= 1 " "
Potatoes (560 M.U. per ton)	4 lb	= 1 " "

Other Foods

Good Succulent Pasture	2 lb (dry matter)	= 1 " "
Molasses	5 lb	= 1 " "

Cash Crop and Small Seeds Production

Yield

These should be determined after consideration of the district averages, the condition of the property and if possible the growing crop, and past performances on that particular property. There are considerable variations due to season but an experienced man will be able to estimate most crop yields in advance fairly accurately after becoming accustomed to his district.

Peas

There are two major sections of this trade. The first is Field Peas or Maple Peas which are grown mainly on the medium quality soils and may be either contract or free. The bulk of the crop is exported. It is sold in two grades after Machine Dressing.

Standards are	No. 1 Grade	No. 2 Grade
Minimum Size	92% over ¼" in dia. 8% tolerance down to 7/32"	85% over 13/64" in dia. 15% tolerance down to 5/32"
Splits	Not to exceed 0.5%	Not to exceed 2%
Damaged & Sprouted	" " " 1.5%	" " " 2%
Foreign Matter	" " " 0.5%	" " " 2%
Moisture	" " " 15%	" " " 15%

The second section of the pea trade is the Garden Peas. A big proportion of the crop is exported but part of it is used as seed for the production of Freezing Peas - a sub-section of the Garden Pea trade. Garden peas whether for Freezing or threshing are usually grown on the better medium-heavy and heavy soils. Freezing peas are contracted in specific areas near factories while the bulk of the garden peas for threshing are also contracted. For further information on peas consult New Zealand Journal of Agriculture Volume 100 page 57, Volume 102 page 357.

Wheat

The principal basis of the wheat market is the F.A.Q. milling standard:

Bushel weight	-	not less than 61 lb
Broken grain	-	less than 4%
Moisture	-	15.5% or less

Freedom from weed seeds and musty grains. Wheats are paid for on the F.A.Q. basis at fixed prices.

Fowl Wheats

Owing to the shortage of wheat in New Zealand, the balance of milling requirements being made up by subsidizing imports, non-milling wheat finds a ready market at milling prices as fowl wheat if quality is at all reasonable.

Seed Wheats

There is a small volume of pedigree wheat produced by a few growers from Government stock grade but this can be disregarded for ordinary budgetary purposes. The main seed wheats are produced as Mother (from Pedigree) 8c above milling and Commercial (from Mother) 5c above milling.

Good lines of milling are of course suitable farmers' seed.
Reference: New Zealand Journal of Agriculture Volume 100, pages 280 to 343.

Barley

There are two sections of this crop. The first and most important is Malting barley which is grown on contract and the other is feed barley which may be contract or free.

Malting Standard: (No. 1 Grade)	Skinned grains - not more than 5%
	Screenings (pinched grain) not more than 15%
	Moisture content - not more than 15%

Main varieties for malting are Research (medium soils) Kenia and Carlsberg (heavy soils). Varieties for feed are Cape, Wong and Black Skinless. For other information refer Canterbury Chamber of Commerce Agricultural Bulletin No. 361 (August 1959).

Oats

This crop is usually grown on the medium and lighter soils as it is a lower fertility demander than wheat or barley. The main sections of the trade are - (a) Milling Oats (Garton's) grown on contract to the porridge manufacturing firms - (b) Algerian and Dun Oats grown for seed to provide for the greenfeed oat trade and (c) Oats for chaff.

The New Zealand average yield of oaten chaff is about $1\frac{3}{4}$ tons per acre (variation 1 ton to $3\frac{1}{2}$ tons). Good chaff has a bright colour, a sweet smell and a high proportion of grain to straw. 25-28 bags to the ton is a good standard. Approximately 27 bushels to the ton grain to straw ratio 45/55. Good average quality up to $70 per ton O.T.S.E. for new seasons F.A.Q. Old seasons $50 - $60 per ton.
Reference: New Zealand Journal of Agriculture Volume 100 page 161.

Linseed

Grown chiefly on the "clay downs" type of country but also a useful crop on heavy land (e.g. Eiffleton) or any reasonably fertile country which is assured of summer showers. New varieties released in recent years which are higher yielding (Redwood and Rocket) and the re-establishment of the linseed oil industry in this country have stimulated new interest in this crop. Grown on contract to the manufacturers.
Reference: New Zealand Journal of Agriculture Volume 102, pages 119 - and 381.

Potatoes

Reference: New Zealand Journal of Agriculture Volume 101 page 218.

The New Zealand crop can be divided into new potatoes and main crop. Approximately 20,000 acres are grown each year to satisfy New Zealand's requirements.

New Potatoes

The main varieties of new potatoes are Epicures and Arran Banners.

Average yields are probably about 3-4 tons of marketable potatoes and for budgeting purposes, an average price of 2-3c per lb could be used, but up to date prices can be seen in the produce reports in the daily newspapers.

Main Crop

The New Zealand and Canterbury average potato yields are approximately 6.0 and 6.5 tons respectively. Certified seed invariably yields 20 - 25% more than uncertified seed.

In Canterbury a 6 ton crop would comprise approximately

4	tons	table potatoes
1½	"	seed
½	"	pig
6		

"Good Table" potatoes are of good shape according to variety, not more than 15% of which can be passed through a square the sides of which have an inside measurement of 2"; the lot shall be free (2%) from green potatoes, second growth, dry or wet rots including blight or frost damage; the lot shall be practically free from earth which shall not exceed 4% by weight of the lot; the weight of the lot affected by mechanical injury including bruises and cuts shall not exceed 6%; the lot shall be practically free from scab or other defects not herein mentioned.

F.A.Q. potatoes are similar to the above except for the figures in brackets.

The Potato Board have a guaranteed payout for surplus potatoes grown on contract.

Payments for surplus potatoes are to be determined on the basis of the F.A.Q. proportion held in pits or sheds at the end of the season. It should be remembered that considerable loss through shrinkage will have taken place by this time.

Seed prices fluctuate widely and no reliable information regarding these is usually available until the crop has been lifted.

The Potato Board levy will be payable on both table and seed potatoes, excepting certified seed carrying the official certification tag of the Department of Agriculture and not exceeding a maximum certification grading size of 6.5 oz., and uncertified seed where the largest tubers are under 4½ oz. in weight.
Levy is $1.80 per short ton as from 1 March 1968.

Hay

The important features of hay are (i) quality
(ii) points of delivery
(iii) supply and demand.

Hay is bulky and costly to transport hence there is little movement of it outside local districts, except in times of shortage.

Lucerne hay sells for 40 cents to 70 cents per bale depending on quality, and bale size.

Meadow hay similarly sells for from 30 cents to 40 cents per bale. Increasing use is made of ryegrass straw which sells for 10 cents to 20 cents per bale.

Small Seeds

The best general reference for these crops is

Small Seeds in Farm Management - H.E. Garrett

Ryegrasses and Clovers are usually taken as crops from first and second year pasture areas sown with the crop in mind though some specialist crops are grown. Cocksfoot and Timothy are normally grown as specialist seed areas.

WORK CAPACITY OF FARM MACHINERY AND IMPLEMENTS

(a) Cultivation
(b) Harvesting.

(a) Acreage covered by cultivation implements in a given time depends on:

1. size of implement
2. size of traction unit
3. nature of country - general steepness of the contour
4. type and condition of soil - compare light, stony, heavy and clay soils. In wet or dry condition
5. work of the implement - plg. initial work - to harrowing seed bed
6. general organisation - keeping the tractor going by working in shifts; proximity of fuel dumps,
7. breakages and general skill of operator. An experienced man knows the speed at which he gets maximum use out of the implement,
8. extent to which other work is combined, such as going around the sheep,
9. size and shape of paddock.

(b) Harvesting machinery. Time depends on:-

1. bulk of the crop - heavy or light yields
2. type of crop - wheat or peas, or clovers etc.
3. condition of crop - ease of threshing - lodged oats or ryegrass,
4. weather - hot, dry, vs. damp and cool,
5. month of harvest - late February or March cooler and shorter days, slow-up harvest,
6. previous treatment of crop - windrowing - peas, ryegrass, oats cocksfoot;
   mown with binder or mower - e.g. ryegrass, oats.

   Has paddock been rolled or is it still cloddy? e.g. wheat and peas.

(a) Implements - medium land - 25 - 30 H.P. Tractor

Implements	Hours per Acre
Skim-plough 3F	1
Deep plough 3F	1.33
Single f. swamp plough	4
Double f. semi-swamp plough	2
Grubber 13 tyne	.33
Harrows med. 5 leaf	.2
Harrows heavy 3 leaf Drummond	.33
Tandem discs 7-a-side (8 feet)	.4
Roller 9' Cambridge	.33
Drill 15 Coulter	.4
Mower 6' Lucerne	.5
Mower 6' pasture or clover	.66
Side rake 2 swaths 12'	.33
Baling (engine function)	.33
Topdressing	.25
Buckrake - Lucerne	1.75
Meadow	2.5

(b) Harvesting

Wheat	6'	500 - 600 bus/day	2 ac/hour
	8'	800 - 1000 "	2½ " "
	10'	1200 - 1500 "	3 " "
Barley	10% slower		
Peas	1 - 2 ac/hr - depending on size of header and whether windrowed or not		
Ryegrasses	1 - 2 ac/hr		
Clovers	¾ - 1½ ac/hr		

Adjustments to cultivation hours

Heavy land	25 - 33⅓% up
Stony land	10 - 30 % up
Undulating to steep	10 - 50 % depending on contour

Additional Hours for feeding out, tractor use at lambing, fencing, plus running to and from paddocks.

Example of Working Out Tractor Hours

Cultivation and Harvesting on medium land

Rotation 30 ac O.G. --- peas --- wheat-barley --- G.F. S.F. N.G.
- ryegrass - W/C - pasture (90 acres)

30 ac O.G. - Peas

deep plg.	1.33
roll	.33
t+ disc 2X	.8
grub 3X	1
harrow 2X	.4
roll 2X	.66
drill	.4
roll	.33
harrow	.2
	5.45 hr/ac
	= 165 total

30 ac Peas - Wh.

t. disc 2X	.8
deep plg.	1.33
grub 3X	1
drill	.4
roll	.33
harrow	.2
	4.1 hr/ac
=	120 total
heading	12 hours

30 ac Wh. - Barley

t.dixc 2X	.8
deep plg.	1.33
grub 2X	.66
harrow 2X	.4
roll 2X	.66
drill	.4
harrow	.2
	4.45 hr/ac
=	135
heading	14 hours

Harvest mow 20 hours
heading 15 hours

30 ac Barley-Greenfeed S/Fallow N.G.

grub	1
roll	.33
drill	.4
plough October	1.33
grub 4X	1.33
harrow 4 X	.8
roll 4 X	1.33
drill	.4
roll	.33
	7,25 hours/acre = 220

Harvesting

60 acres	Mowing ryegrass White clover	.66	40 hours
30 acres	Heading ryegrass 1½ acres/hour		20 hours
30 acres	Heading white clover 1 acre/hour		30 hours

Hay Mowing

10 acres	Lucerne 3X mown at 1.5/acre	15 hours
Carting in bales		15 hours

Feeding Out

1 hour/day	100 days	100 hours

Summary

Cultivation plus 5% to and fro	640 + 30	670 hours
Harvesting peas 35 hours, Wheat 12 hours, Barley 14 hours, Small seeds 90 hours		150 hours
Haymaking and carting bales		40 hours
Other - feeding out and sundry jobs		150 hours
	Total	1010 hours
	say 1000 hours	

Pasture topdressing and baling by contract.

Header costs worked out separately:- 110 hours

Assessment of Provisional Taxation for the Budget

This information is necessary when one wishes to estimate the effect which a given budgeted programme will have upon the farmer's resultant liquidity and what change will likely take place in his capital position as a result of the proposed programme.

Tax Codes

These are assessed on the basis of the exemptions allowed to various groups of people. If the farmer is single his code is "S". If he is married his code is "M" (except in special circumstances) and he has as well a number beside the letter e.g. "M3", giving the number of his dependents for which he can claim an exemption e.g. three children under 18 years of age.

Although personal life insurance premiums are allowable as an exemption they are not normally incorporated in the tax code but are the subject of an adjustment after the financial year has ended. As we are interested in the net tax liability it is a desirable practice to incorporate the premiums paid (as shown in past accounts) in the tax code. This can be done by adding 1 to the code for every complete $156 paid as premiums, e.g. this is the allowable exemption for each child.

An example of a tax code for a married man with three children paying $320 per year life insurance is as follows:

1.	Married	therefore	M
2.	Three children	therefore	3
3.	$320 insurance is 2 x $156 + $8	therefore add	2
	Overall Code		M5

Calculation of Provisional Taxation

1. Select from the income column in the table overleaf the amount coinciding with the complete dollars of the income on which you are computing tax or, if no such coinciding amount is shown in the income column then select the amount which is smaller than but nearest to the complete dollars of the income on which you are computing tax.

2. The provisional tax is the amount which

   (a) appears opposite the amount so selected in the income column and

   (b) is in the column headed by the tax code to be used as calculated above.

N.B.

In reality Provisional tax is assessed on last year's actual taxable income (gained from the accounts). Terminal tax assessment made later in the financial year will assess the amount of tax which should have been paid on the past year's income and the corresponding adjustment is made.

TABLE IV CALCULATION OF PROVISIONAL TAX

(This table combines both social security income tax and ordinary income tax)

INCOME	S	S1	M/S2	M1/S3	M2/S4	M3/S5	M4/S6	M5/S7	M6/S8
$	$	$	$	$	$	$	$	$	$
208	0	0	0	0	0	0	0	0	0
234	2	2	2	2	2	2	2	2	2
260	4	4	4	4	4	4	4	4	4
286	6	6	6	6	6	6	6	6	6
312	8	8	8	8	8	8	8	8	8
338	10	10	10	10	10	10	10	10	10
364	12	12	12	12	12	12	12	12	12
390	14	14	14	14	14	14	14	14	14
416	16	16	16	16	16	16	16	16	16
442	18	18	18	18	18	18	18	18	18
468	20	20	20	20	20	20	20	20	20
494	22	22	22	22	22	22	22	22	22
520	24	24	24	24	24	24	24	24	24
546	26	26	26	26	26	26	26	26	26
572	28	28	28	28	28	28	28	28	28
598	30	30	30	30	30	30	30	30	30
624	32	32	32	32	32	32	32	32	32
650	34	34	34	34	34	34	34	34	34
676	36	36	36	36	36	36	36	36	36
702	38	38	38	38	38	38	38	38	38
728	38	38	38	38	38	38	38	38	38
754	40	40	40	40	40	40	40	40	40
780	42	42	42	42	42	42	42	42	42
806	44	44	44	44	44	44	44	44	44
832	46	46	46	46	46	46	46	46	46
858	48	48	48	48	48	48	48	48	48
884	50	50	50	50	50	50	50	50	50
910	52	52	52	52	52	52	52	52	52
936	54	54	54	54	54	54	54	54	54
962	60	56	56	56	56	56	56	56	56
988	64	58	58	58	58	58	58	58	58
1014	70	60	60	60	60	60	60	60	60
1040	76	62	62	62	62	62	62	62	62
1066	80	64	64	64	64	64	64	64	64
1092	86	66	66	66	66	66	66	66	66
1118	92	70	68	68	68	68	68	68	68
1144	98	76	70	70	70	70	70	70	70
1170	102	82	72	72	72	72	72	72	72
1196	108	88	74	74	74	74	74	74	74
1222	114	92	76	76	76	76	76	76	76
1248	120	98	78	78	78	78	78	78	78
1274	124	104	82	78	78	78	78	78	78
1300	130	108	88	80	80	80	80	80	80
1326	136	114	94	82	82	82	82	82	82
1352	140	120	98	84	84	84	84	84	84
1378	146	126	104	86	86	86	86	86	86
1404	152	130	110	88	88	88	88	88	88
1430	158	136	116	94	90	90	90	90	90
1456	162	142	120	100	92	92	92	92	92
1482	168	148	126	106	94	94	94	94	94

INCOME	S	S1	M/S2	M1/S3	M2/S4	M3/S5	M4/S6	M5/S7	M6/S8
1508	174	152	132	110	96	96	96	96	96
1534	180	158	138	116	98	98	98	98	98
1560	184	164	142	122	100	100	100	100	100
1586	190	170	148	126	102	102	102	102	102
1612	196	174	154	132	112	104	104	104	104
1638	202	180	158	138	116	106	106	106	106
1664	206	186	164	144	122	108	108	108	108
1690	212	190	170	148	128	110	110	110	110
1716	218	196	176	154	134	112	112	112	112
1742	222	202	180	160	138	118	114	114	114
1768	228	208	186	166	144	124	116	116	116
1794	234	212	192	170	150	128	118	118	118
1820	240	218	198	176	156	134	120	120	120
1846	244	244	202	182	160	140	122	122	122
1872	250	230	208	186	166	144	124	124	124
1898	256	234	214	192	172	150	130	126	126
1924	262	240	218	198	176	156	134	128	128
1950	266	246	224	204	182	162	140	130	130
1976	272	250	230	208	188	166	146	132	132
2002	278	256	236	214	194	172	152	134	134
2028	284	262	240	220	198	178	156	136	136
2054	292	268	246	226	204	184	162	140	138
2080	298	272	252	230	210	188	168	146	140
2132	310	284	262	242	220	200	178	158	144
2184	322	296	274	252	232	210	190	168	148
2236	336	308	284	264	242	222	200	180	158
2288	348	320	296	274	254	232	210	190	170
2340	362	334	308	286	264	244	222	202	180
2398	376	348	320	296	276	254	234	212	190
2444	392	360	332	308	286	264	244	222	202
2496	406	374	346	320	296	276	254	234	212
2548	420	388	360	332	308	286	266	244	224
2600	436	402	372	344	320	298	276	256	234
2652	452	418	386	358	332	308	288	266	246
2704	468	432	400	370	344	320	298	278	256
2756	482	448	414	384	356	332	310	288	268
2808	500	464	428	398	370	344	320	300	278
2860	516	478	444	412	382	356	332	310	290
2912	532	494	460	426	396	368	344	322	300
2964	548	510	474	440	410	380	356	332	312
3016	564	526	490	456	424	394	368	342	322
3068	582	544	506	470	438	408	380	354	332
3120	598	560	522	486	452	420	392	366	344
3172	616	578	538	502	468	436	406	378	354
3224	632	594	554	518	482	450	420	392	366
3276	650	610	572	534	498	464	432	404	398
3328	668	628	588	550	514	478	446	418	390
3380	686	644	604	566	530	494	462	430	402
3432	704	662	622	582	546	510	476	444	416
3484	722	680	638	600	562	526	490	458	430

INCOME	S	S1	M/S2	M1/S3	M2/S4	M3/S5	M4/S6	M5/S7	M6/S8
3536	740	696	656	616	578	542	506	472	442
3598	758	714	674	634	594	558	522	488	456
3640	776	732	690	650	612	574	538	502	470
3692	794	750	708	668	628	590	554	518	484
3744	814	770	726	686	644	606	570	534	500
3796	832	788	744	702	662	624	586	548	514
3848	852	806	762	720	680	640	602	564	530
3900	870	824	782	738	696	656	618	580	546
3952	890	844	800	756	714	674	634	598	560
4004	910	864	818	774	742	692	652	614	576
4056	930	882	836	792	750	708	668	630	592
4108	948	902	856	812	768	726	686	646	608
4160	968	922	874	830	786	744	702	664	624
4264	1010	960	914	868	822	780	738	698	658
4368	1050	1000	952	906	860	816	774	732	692
4472	1092	1042	992	944	898	854	810	768	726
4576	1134	1084	1032	984	936	890	846	804	762
4680	1178	1124	1074	1024	976	930	884	840	796
4784	1220	1168	1166	1064	1016	968	922	876	832
4888	1264	1210	1158	1106	1056	1008	960	914	870
4992	1310	1254	1200	1148	1098	1048	1000	952	906
5096	1354	1298	1244	1190	1138	1088	1040	992	946
5200	1400	1344	1288	1234	1182	1130	1080	1030	984
5304	1448	1390	1332	1278	1224	1172	1120	1072	1022
5408	1494	1436	1378	1322	1268	1214	1162	1112	1062
5512	1542	1482	1424	1368	1312	1258	1204	1154	1104
5616	1590	1530	1470	1412	1356	1302	1248	1194	1144
5720	1640	1578	1518	1458	1402	1346	1290	1238	1186
5824	1688	1626	1566	1506	1448	1390	1334	1280	1228
5928	1738	1676	1614	1554	1494	1436	1380	1324	1270
6032	1790	1726	1662	1602	1542	1482	1424	1368	1314
6136	1840	1776	1712	1650	1588	1530	1470	1414	1358
6240	1894	1828	1762	1698	1638	1576	1518	1460	1404
6344	1946	1878	1814	1748	1686	1624	1564	1506	1448
6448	1998	1930	1864	1800	1736	1674	1612	1552	1494
6552	2052	1984	1916	1850	1786	1722	1660	1600	1540
6656	2108	2038	1968	1902	1836	1772	1710	1648	1588
6760	2162	2092	2022	2954	1888	1822	1760	1696	1636
6864	2218	2146	2076	2008	1940	1874	1808	1746	1684
6968	2274	2202	2130	2060	1992	1926	1860	1796	1732
7072	2332	2258	2186	2114	2046	1978	1912	1846	1782
7176	2396	2314	2242	2170	2100	2030	1964	1898	1832
7280	2460	2376	2298	2224	2154	2084	1016	1948	1884
7384	2524	2440	2356	2280	2208	2138	2070	2002	1934
7488	2588	2502	2420	2338	2264	2192	2122	2054	1986
7592	2654	2568	2482	2400	2320	2248	2178	2108	2040
7696	2720	2632	2548	2462	2380	2302	2232	2162	2092
7800	2788	2700	2612	2526	2442	2360	2288	2216	2146
7904	2856	2766	2678	2592	2506	2422	2344	2272	2200
8008	2924	2834	2744	2656	2570	2486	2402	2328	2256

INCOME	S	S1	M/S2	M1/S3	M2/S4	M3/S5	M4/S6	M5/S7	M6/S8
8112	2992	2902	2812	2722	2636	2550	2466	2384	2312
8216	3062	2970	2878	2790	2702	2614	2530	2446	2368
8320	3132	3040	2948	2856	2768	2680	2594	2510	2426
8424	3204	3110	3016	2924	2834	2746	2658	2574	2490
8528	3274	3180	3086	2994	2902	2812	2724	2638	2552
8632	3340	3250	3156	3062	2970	2880	2790	2704	2618
8736	3414	3320	3226	3132	3040	2948	2858	2770	2682
8840	3484	3390	3296	3204	3110	3016	2926	2836	2748
8944	3554	3460	3366	3274	3180	3086	2994	2904	2814
9048	3624	3530	3438	3344	3250	3156	3062	2972	2884
9152	3694	3600	3508	3414	3320	3226	3132	3040	2548
9256	3764	3672	3578	3484	3390	3296	3204	3110	3018
9360	3834	3742	3648	3554	3460	3366	3274	3180	3086
9464	3906	3812	3718	3624	3530	3438	3344	3250	3156
9568	3976	3882	3788	3694	3600	3508	3414	3320	3226

METHOD OF CALCULATING TAX WHERE INCOME EXCEEDS $9,568

Take the tax on $9,568, as above, and for the taxable balance exceeding $9,568 add any excess calculated at $1.35 in every $2.00 taxable income.

Example:

Person with provisional tax code M2 -

Annual income $12,000	
Tax on $9,568 for M2	3,602
Tax on $2,432 at $1.35 in $2	1,641
TOTAL PROVISIONAL TAX	$5,243

Cost and Price Information

Management is essentially a process of planning. To formulate a plan one must either work with fixed levels of costs and prices for all the inputs and outputs or alternatively set to work to estimate them prior to formulating the plan. In New Zealand some farm prices are relatively fixed while others are free to fluctuate within fairly wide limits. For instance the prices of butter-fat and of wheat could be described as fairly fixed although the overseas market on the one hand and internal politics on the other could affect both to a limited extent in the short term and perhaps eventually to quite a marked extent. Wool on the other hand moves up and down within fairly wide limits in response to fluctuations in the world market.

In some western countries departments of state exist, e.g. the Price Bureau of the Department of Agriculture in the U.S.A., designed exclusively to predict the price of all major agricultural commodities. These departments engage in what they believe to be fairly accurate forecasts for up to 18 months to two years ahead and even issue forecasts for up to 4 and 5 years ahead with naturally less assurance as to their accuracy.

New Zealand although probably more dependent than any other country on agriculture is singularly devoid of such information. There is a great need for a defined and informed service on price forecasting in New Zealand.

In its absence the farm management planner must do his best. The usual system is to take a slightly conservative view of current prices over the last 2 - 3 years together with the best outlook information currently available and use this as a basis for planning prices and costs. This is the modus operandi and would appear to be the best course of action but it leaves room for grave doubts because a cursory examination of the past is not necessarily the best guide to the future.

Accordingly in each district farm management officers draw up a list of prices and costs to use as a basis for planning and budgeting. This is quite a major task. There is considerable room for divergence of views on the levels of prices particularly and this unfortunately can have fairly major effects as far as calculated levels of net profit are concerned. For instance a change of 3c in the price of butterfat may alter the price by 12½% but the percentage change in the calculated net income is likely to be about 50%.

The absence of any real assurance that the selected prices and costs are the ones which will actually rule in the future causes some people to adopt a somewhat scornful approach to budgeting and management planning as a whole. However such an approach would throw one back on an entirely fatalistic "take what comes" basis. The whole essence of management planning is the attempt to anticipate some elements at least of the future and so make intelligent adjustments to them before they eventuate. The fatalistic approach involves making adjustments on account of events which have occurred and these adjustments may or may not be relevant to the future.

The approach usually adopted by management is to take costs at their full current value and possibly beyond, if it is thought necessary, and prices at conservative levels compared with the past and the future outlook. The management plan, provided it is sound agriculturally, is then unlikely ever to fail to be achieved and should usually be bettered. In most instances this is far better psychology than selecting higher prices and thus having actual performances eventuate which are less successful financially than the planned programme.

Where however the budget is being made for one year ahead only, and particularly where the year has already partially elapsed, planners and budgeteers should make every endeavour to select the actual prices and costs. Where the planner knows his agriculture the final outcome will be surprisingly close to the estimates.

For long term planning as well as short term there is a need for a complete list of district costs and prices. Unfortunately at present these must be based on a conservative interpretation of the previous and the current levels of prices and costs. Also somewhat unfortunately, due to the lack of co-ordination between various groups of professional farm management officers in New Zealand, there are as yet no established lists of costs and prices which are generally accepted as standards for each farming district throughout the country.

Instead we have the existence of separate lists in each of the major organisations such as the relevant government departments. Because of the necessary work involved and the shortage of trained staff, these lists are not always completely accurate. The consequent economic loss which goes with the duplication of effort must also be considered. Improvement could be brought about here through the development of a Society of Farm Managers in New Zealand. Until this comes about one of the first steps for the farm management planner is to draw up his own list of the appropriate costs and prices or alternatively obtain access to one which has been well prepared.

REVENUE DATA FOR CURRENT BUDGETING

1. MEAT (A) SHEEP

Locally Consumed Lamb and Mutton

There is a considerable volume of sales from farms to wholesale meat buyers direct, the main stock sales such as Addington and Burnside still set the market in the South Island. The weekly stock report is the best guide to the current situation.

Export Lamb and Mutton

Meat which is exported is graded by the New Zealand Meat Producers Board. The various grades are paid for by means of a meat schedule, details of which are set out below.

As regards lambs, ewes and wethers the payout is based on a separate assessment for meat and another for pelt and wool payment. These schedules are subject to alteration without notice. In the case of meat, prices may be altered to make allowance for any one or a combination of the following:-

1. Changes in meat prices due to supply and demand at Smithfield.
2. Changes in prices for by-products, and
3. Changes in killing charges.

If the meat and pelt schedule remains relatively stable throughout the season for lambs then, other things being equal there should be an increase in return per head due to the increased wool pull later in the season.

In Canterbury many freezing ewes are sold "on the hoof" in the owner's yards.

The following prices quoted were those for the Canterbury Meat Operators' Schedule as from 5th February 1968.

Lambs	Delivered Port/Works
1st Quality	
Up to 28 lbs	14.4 cents
29/36 "	14.4 "
37/42 "	13.2 "
0/42 "	12.0 "
Omega	
U/28 lbs	12.7 "
29/36 "	12.7 "
F.A.Q.	
Up to 28 lbs	13.1 "
29/36 "	14.0 "
0/36 "	13.2 "
Alpha	11

Ewes		Wethers	
1st Quality	Per lb	1st Quality	Per lb
Under 48 lbs	6.5	Under 48 lbs	8.0
49/56 "	5.7	49/56 "	7.2
57/64 "	4.5	57/64 "	6.0
65/72 "	2.8	65/72 "	4.3
73/80 "	1.8	73/80 "	2.5
0/80 "	.5	0/80 "	.5
0/Fat	.5	0/Fat	.5
F.A.Q.		F.A.Q.	
Under 48 lbs	6.5	Under 48 lbs	7.0
0/48 "	5.7	49/56 "	6.2
		0/56 "	5.0
Canners	5.3	Canners	5.3
Choppers	1.5	Choppers	1.5

Skin Payments

Woolly Lambs

Wool	1½ lbs	115c
	1¾ "	121c
	2 "	128c
	2¼ "	134c
	2½ "	140c
	2¾ "	147c
	3 "	153c
	3¼ "	160c
	3½ "	166c
	3¾ "	172c

Less 17 cents per head for seedy
Less 5 cents per head for Black Fibre

Shorn Lambs

½ lb	72c
¾ "	74c
1 "	76c
1¼ "	86c
1½ "	91c

Skin Payments

½ lb	67 cents per head
¾ "	70 " " "
1 "	73 " " "
1¼ "	76 " " "
1½ "	80 " " "
1¾ "	85 " " "
2 lbs	89 " " "
2¼ "	94 " " "
2½ "	100 " " "
2¾ "	106 " " "
3 "	112 " " "

Seedy wool - a deduction will be made

In forecast budgeting the following may be used as a reasonable guide for export meats:

Lamb	Prime 32 lbs	12.5c	per lb + wool allowances
	Seconds	12.0c	per lb + " "
Ewes	Under 56 lbs	5.5c	per lb + " "
	Over 56 lbs	4.0c	per lb + " "
Wethers	Under 56 lbs	7.0c	per lb + " "
	Over 56 lbs	5.5c	per lb + " "

Lamb Pelts:

Prices for sound pelts in mid February 1968 were $12.80 per dozen, F.O.B. compared with $6.50 per dozen received at the same time in 1967.

For average receipts budget on $1.00 per pelt.

(B) CATTLE

The following Canterbury schedule was in operation as from 5th February 1968.

		Per 100 lbs
G.A.Q. F.A.Q. Ox	U/680	18.00
	681/740	17.50
	741/800	17.00
	O/800	16.00
G.A.Q. F.A.Q. Heifer	U/560	17.00
	O/560	15.50
G.A.Q. Cow	U/600	16.00
	O/600	14.50
F.A.Q. Cow		16.50
Boner Cow Ox and Heifer		16.50
Boner Bull		19.50
O/Fat Cow, Ox and Heifer		10.50

Addington market prices for fat cattle for local consumption during January 1968 were as follows:-

Prime steers (550 - 650 lbs)	$100.00	-	$116.00
Prime heifers (450 - 500 lbs)	78.00	-	88.00
Prime cows (550 - 650 lbs)	78.00	-	88.00
Runners (veal)	56.00	-	66.00
Suckers (veal)	30.00	-	40.00
Bull beef	110.00	-	180.00

The "Press" reports of the Addington Market should be followed regularly and account taken of seasonal variations in prices in making budgetary estimates.

Forecasting of beef export schedule prices is very difficult owing to fluctuations in supply in the United Kingdom which affect the schedule here. The above schedule should form a general guide.

(C) PIGS

The Addington market which supplies local consumption is the price leader in this field.

Addington market prices in January were as follows:-

Light Porkers	$12.50	-	$15.00
Medium Porkers	15.50	-	17.50
Heavy Porkers	18.00	-	19.00
Light Baconers	20.00	-	21.00
Medium Baconers	21.00	-	22.00
Heavy Baconers	23.00	-	26.00
Choppers	18.00	-	28.00

These prices are subject to seasonal variation so up-to-date newspaper reports should be consulted when budgeting.

2. Wool

Gross prices which can be used over the whole clip in forecast budget work are given below for the main count ranges.

Count Ranges	Av. Price per lb in Cents Based on Average S.I. Prices for 1967/68
60/64's Merino	47¾ cents
58/60's Halfbred	46½ cents
50/56's Corriedale	44½ cents
48/50's Fine crossbred	26¼ cents
46/50's Medium crossbred	25 cents
46/48's Strong crossbred	23½ cents

(prices taken are those ruling at the Christchurch Sale of January 1968)

Note that these prices are applicable to clips of average quality in each of the count ranges. Where exceptionally good or poor wool is clipped an adjustment of 1 cent to 2 cents per lb could be made.

In following the wool sale reports from time to time in the press, the quotations for the Average grade of fleece wool in each count range should be noted particularly as this figure is an excellent guide to the overall average price per lb including oddments for the majority of clips.

3. Dairy Produce

(a) Cream to Butter Factories

The payout is based on the guaranteed price (at present 26.59 c per lb) but actual payouts to suppliers will depend upon factory efficiency and transport costs of cream to factories. Advance payouts below the guaranteed price are made each month and the final payment or bonus is made in August of each year. There are three grades of cream: Finest, First and Second. The majority of the cream produced should grade Finest.

The Tai Tapu Dairy Factory for the 1967/68 season is paying the following advance payment:-

Finest	23.5 cents
First	23.0 cents
Second	21.0 cents

(b) Whole Milk to Butter Factories

In many North Island districts this is common practice. The dairy company sends round tankers to collect all the milk from the farm vats. Advantages are:

i. More efficient separation of the cream
ii. Utilization of the Skim Milk to make Skim Milk Powder
iii. For the farmer the problem of keeping pigs to utilize large quantities of skim milk are eliminated.

Payouts vary with the level of factory efficiency and transport costs but usually they are about $3\frac{1}{2}$ cents per lb ahead of those factories which receive only cream. This return comes from the skim milk powder and compensates the farmer in some measure for the extra profits he can no longer obtain.

(c) Whole Milk to Cheese Factories

Is paid for on a butterfat basis. The guaranteed price is 5 cents per lb of butterfat more than for butter factories. Actual payments will depend on the efficiency of factories and returns from the sale of by-products for the manufacture of such items as whey butter and sugar of milk.

(d) Whole Milk to Casein, Milk Powder and Condensed Milk factories

Usually based on cheese but actual payouts will depend on factories' contracts to sell overseas. Most pay out more than cheese.

(e) Whole Milk for Town Supply (refer to page 18 for additional data)

The national milk prices have been fixed at the following rate for the 1967/68 season:

22.37 cents first, plus 1.67 cents per gallon quota milk finest
minus 5 cents per gallon quota milk second grade.

A production incentive allowance equivalent to $1\frac{1}{2}$ cents per gallon on quota finest and first grade milk is paid out all the year round for South Island districts. In practice this allowance is used to stimulate autumn and winter production, i.e. from March until August an additional 3 cents per gallon is paid for all milk of Finest and First Grades received at quota prices. The Canterbury Dairy Farmers Limited seasonal pay for quota milk during the 1967/68 season are as follows:

CANTERBURY DAIRY FARMERS LIMITED

P R I C E S 1967/68

Month		Full Price Paid For	Finest	First	Second	Surplus Milk Finest	Surplus Milk First	Surplus Milk Second
September, 1967		105% of quota	31.62c	29.95c	23.28c	12.63c	10.96c	7.63c
October		" " "	19.17	17.50	14.17	"	"	"
November		" " "	"	"	"	"	"	"
December		" " "	"	"	"	"	"	"
January 1968		" " "	"	"	"	"	"	"
February		All milk supplied	22.50	20.83	17.50	"	"	"
March		" " "	"	"	"	"	"	"
April	*	Quota + 20% of quota	31.62	29.95	23.28	"	"	"
May	*	" + 20% "	"	"	"	"	"	"
June	*	" + 25% "	"	"	"	"	"	"
July	*	" + 25% "	"	"	"	"	"	"
August	*	" + 20% "	"	"	"	"	"	"

* = estimated basis of payment

Less levy of 0.21 c. per gallon

NOTE

(a) Finest grade - is milk which passes a 6 hour reductase test and contains not less than 3.5% butterfat.

(b) First grade - is milk which passes a 4 hour reductase test but fails to pass the 6 hour test and/or contains not less than 3.25% butterfat.

(c) Second grade - is milk which fails to pass a 4 hour reductase test or contains less than 3.25% butterfat.

(d) A premium of 0.42c per gallon is payable on full price milk from herds which are fee of brucellosis.

(e) A penalty of 0.83c per gallon is applied to milk testing 8.35% S.N.F. and below, and 1.67c per gallon to milk testing 8.20% S.N.F. and below.

The penalty is applied on a monthly basis on the average of three solids-not-fat tests per month - one in each 10 day period.

Throughout New Zealand about 96% of the milk supplied is graded Finest and less than 0.5% is graded second. Chilled milk premiums are:

$0.007 per gallon quota milk of chilled and held: or
0.004 per gallon of chilled only.

(f) Bobby Calf Realizations

In Canterbury the majority of calves are of the Friesian breed. Prices paid by the Bobby Calf pools are based on a price per pound less cartage so that average local returns are above the national average, and above what we could expect if Jerseys were the predominant breed on a farm. Budget figures which may be adopted are:

Friesian type calves $7.50 per head
Jersey type calves $6.00 per head.

4. Dairy Cattle

The dairy cattle offered at Addington are not of very good quality by and large, except for some lines of yearling heifers so that the Addington market prices are not a good guide to dairy cattle values. Any clearing sales of dairy farms which occur during the autumn are usually a much better guide as the better quality cattle change hands on such occasions. In Canterbury with a distinct emphasis on town supply dairying there is a considerable premium paid for autumn calving cows and heifers over the prices paid for spring calving cows and heifers. Price ranges are difficult to pinpoint and the following can be considered a guide only.

Good quality Friesian x heifers (autumn calvers)	$110 - 140
" " Friesian x cows (" ")	100 - 120
" " Friesian x heifers (12-18 mths old)	50 - 60
Cull boner Dairy Cows (aged) of Friesian x type	60 - 70

Spring calving cows and heifers $20 - 30 per head below the comparable autumn calving figure.

5. Breeding and Store Stock

The main saleyards and ewe and ram fairs are the market.

The following are an analysis of prices paid for these main classes of stock at the beginning of the year and should be used only as a guide. Any marked changes as the year progresses will be seen by noting all sale reports.

(a) Sheep

2T Ewes	Good Romney	to $7	Ewe Hoggets	Good Romney	to $6
	Average Romney	to $6		Average Romney	to $5.50
	Others	to $5		Good fine wool	to $7
	Good fine wool	to $11		Average fine "	to $5.50
	Average "	to $8	Store Lambs	Ave. Dn. X	to $2
	Others	to $6		Ave. Rom. Wthr	to $2
4yr Old Ewes	Good fine wool	to $9		Ave. ½bred wthr	to $2
	Average "	to $6	Rams (flock)	(Ave. Quality)	
	Others	to $5		Southdown	$20
5yr Old Ewes	Good Romney	to $4.50		Dorset Down	$50
	Average	to $3.60			
	Others	to $3		Romney	$30
	Good fine wool	to $6		Corriedale	$50
	Average "	to $5		Halfbred	$30
	Others	to $4		Border Leicester	$30

(b) Beef Cattle

Weaners (good types) 50-60		(steer calves)	$40 - 50 (hf. calves)
1½ + years - $75 - 85		(store steers)	$55 - 65 (store hf)
2½ + years - $90 -100		(forward store steers)	$50 - 60 $65 - 75 (in calf) hfrs
Breeding Cows - $60 - 70		depending on age and quality.	
Beef Bulls - $200 - 350		for reasonable animals.	

(c) Pigs

Small Weaners		$3.00 - 4.00	
Best Weaners		4.00 - 5.00	
Slips		5.50 - 7.00	
Small and Medium Stores		8.00 10.00	
Large Stores		- 13.00	
Maiden Sows (Gilts) $35 - $50		(in pig) $30 - 40	(to put to boar)
Older Sows (in pig) $25 - 50		2nd and 3rd litters down to chopper price as they become aged.	
Boars (8 -12 mths) $25.00			

6. Crops

(a) Wheat (South Island Prices for 1968/69 season)

Hilgendorf	$1.50 per bushel O.T.C.S.S.E.				)incl. 10c withheld
Arawa	$1.30 " " "				)to indemnify wheat
All other varieties	$1.35 " " "				)board against pos-
Storage increments for wheat held on farms after hvst.					sible marketing
After April 30th	.05	After May 31st	8c		loss from 1959
After June 30th	.10	After July 31st	12c		harvest. This
After August 31st	.14	September onwards	15c		will be refunded
					in full to grower
South of Wakouaiti increments are delayed one month.					if no loss arises from disposal of 1959 harvest

(b) Barley

Preferred Malting varieties	95 cents contract per bushel	
Feed Barleys	90 cents " " "	
Seed Barleys. Certified	Mother (from Pedigree)	5c above malting
"	Commercial (from Mother)	5c above malting

(c) Oats (Prices for A grade milling or G.A.Q. quality O.T.C.S.S.E.)

Gartons and other white oats (contract)	85 cents	free 75 cents
Algerians		free 70 cents

(d) Peas

			1968-69
(i)	Partridge (contract)		$1.60
	(free)		1.60
(ii)	Garden (contract)	Greenfeast	1.60
	"	Onward	1.90
	"	Wm. Massey	1.90
	"	Victory Freezer	1.60
	"	White Prolific	1.25

(iii) Green Peas for Freezing 2 cents to 4 cents per lb depending on stage of maturity at harvest as indicated by tenderometer.

(e) Linseed

Budget at $70.00 per ton with bonuses for above average quality.

(f) Lupins

$1.20 per bushel

(g) Ryecorn

$1.25 per bushel to farmer

(h) Main Crop Potatoes

Prices of table potatoes vary considerably from year to year depending on the areas planted and yields obtained per acre. Prices have been stabilized to some extent by the introduction of a guaranteed payout scheme by the Potato Board for all surplus potatoes grown on contract to them. The guaranteed basic prices per ton in the South Island are as follows:

Varieties	Sutton, King Edward & Red King	$26 per "short" ton
	Chippewa	$24 per " "
	Other Varieties	$15 per " "

Seed potato prices vary from year to year with changes in supply and demand but usually range from $30 - $50 per ton. Potato growing is a specialist occupation and considerable care is needed in attempting to budget forward because of the wide fluctuations in price from year to year.

Potato Board Levy: $1.80 per ton

(i) A number of other specialist crops such as Brassicas for seed are sown in different areas for which price figures have not been obtained. Students will usually get the necessary information for budgeting when on farm visits to these areas.

7. Small Seeds

The grain and produce reports published at intervals in the "Press" give up to date prices and should be retained as additional information on this subject as the year proceeds. Prices to the farmer on a machine dressed basis vary with the purity and germination of the line of seed and the following can be considered to be a general guide only.

(a) Grass Seeds

Manawa Ryegrass

Certified 2nd generation	$1.35
" Mother 1st "	1.40
Basic	1.45

Paroa

Certified 2nd generation	1.35
" 1st "	1.40
Basic	1.45

Ruanui Ryegrass

Certified 2nd Generation	1.50
" 1st "	1.60
Basic	1.70

Ariki Ryegrass

Certified 2nd generation	1.50
Mother 1st generation	1.60
Basic	1.70

Grasslands Apanui Coxfoot

Certified 1st generation	0.30
Basic	0.32

(b) Clover Seeds

Huia Clover

Certified 2nd generation	20 cents
" 1st "	22 "
Basic	23 "

Turoa Montgomery Red clover

Certified 2nd generation	0.175
" Mother 1st "	0. 25
Basic	0.275

Hamua Broad Red Clover

Uncertified	0.15
Mother	0.16
Pedigree	0.18

Subterranean Clover

Uncertified	35 cents

Tall Fescue 0.30

Prairie Grass 7 cents

Wairau Lucerne

Uncertified	0.30
Mother 2nd generation	0.35
Basic	0.40

(a) Grass Seeds

Kahu Timothy

Certified 2nd generation	0.30
Certified 1st generation	0.30
Basic	0.35

EXPENDITURE

1. WAGES

a) Musterers, Packers and Drovers Award - refer Fed. Farmers H'bk page 186
Shearers and Shed Hands Award - refer Fed. Farmers H'bk page 190
Dairy Farm and Farm and Station Wages - refer Fed. Farmers H'bk page 202

Minimum Rates	Dairy Farm	Farm and Station
Under 17 years	$9.05	$6.825 p.w. & found
Between 17 and 18 years	11.325	8.775
" 18 and 19 years	13.775	10.775
" 19 and 20 years	16.10	12.85
" 20 and 21 years	18.325	15.10
Over 21 years	20.55	17.416

Board and lodging allowance is $2.25 per week when living away off farm.

Board allowance is $3.25 for labour occupying a farm house.

Allowance for house is $1.00 per week.

Include in wages the cost of keep of single men at $3.25 per week, over and above wages paid.

Casual

Harvesters 53 cents an hour with rations

Other workers

	per hour		per hour	
	Found	Not Found	Found	Not Found
Over 18 years	45½ cents	53 cents	$3.63	$4.25
Under 18 years	31 cents	39 cents	$2.48	$3.10

(b) Shearers' Rates

Canterbury shearers are charging from $13 to $16 per 100 for shearing and $4 to $7 per 100 for crutching. Blade shearing $16 - $18 per 100.

2. Animal Health

(a) Dog registration fees and Hydatid control fees $2.10

(b) Dip

Diazanon 25% conc.	$21.70 gal.	450 sheep - $0.048 per sheep
Arsenic + derris	$1.85 per 10 lb	100 sheep - $0.018 sheep not blowfly protection.

Supreme (24 wk.fly protection) $17 per gal.

(c) Drenches	Cost	Dose	Total per cost/head in cents	
N.C.A.	$1.45 bttl	¾ oz	200 lambs	0.7 c
	16 oz	1½ oz	100 sheep	1.4 c
Selenium - oral dr'h	0.65	1 cc	400 lambs	0.2 c
	400 cc		80 sheep	0.8 c
Calcium boroglucate	0.45 per 12 f.oz bttl		1 bottle/cow	45 c
Calciferol	$8.50 gal.	½ fl.oz	320 sheep	2.5 c
Loxon	$6.80	¾ fl.oz	130 lambs	5.3 c
		¾ fl.oz	87 sheep	7.0 c
Nilverm	$17.30 gal.	15 cc	303 lambs	5.7 c
		20 cc	227 sheep	7.6 c
Thibenzole	$24 per gal.	11 cc	409 lambs	5.9 c
		19 cc	236 sheep	10 c

(d) Vaccines

Pulpy kidney	$2.50 per 200 cc plastic pack 2 cc	100 sheep	2½ c
Triple Vaccine	$6.20 per 200 cc 2cc plastic pack	100 sheep	5 c

(e) Penicillin

Sheep	100,000	$1.10 doz.	Cows	25,000	$0.78
	500,000	$2.20 "		50,000	$0.90
	1,500,000	$2.33 ½ doz.		100,000	$1.15

Disinfectants

Stericide	$2.50 per gal.
Zoltas	$2.95 per gal.
Kerol	$3.60 per gal.
Camfosa	$3.75 per gal.
Detol	$3.95 per gal.
Formalin	$37.00 for 44 gal. drum
Bluestone	$17.00 per 1 cwt

Footrotting costs estimate $2. per 100

Docking rings $2.60 per packet of 500.

Veterinary Club Membership

$8.00 plus $3.50 per visit, $2 per re-visit - plus drugs (Canty)

Tb. Testing

Bi-annual testing - nil fee to farmer under normal circumstances.

Dairy Farm - total animal health expenses approximately

$2.00 per cow (factory supply)
$2.50 per cow (town milk supply)

3. Breeding Expenses

(a) Artificial Breeding

Group service. $1.50 to $2.25 cow in calf for specific spring and winter mating seasons. (2 return services). Frozen semen available all year round at $3.00 plus 9 cents per mile for insemination.
Nominated bull $1.50 per insemination above basic fee on group service

Page 51 is originally missing.

Herd Testing

(S.I. Herd Improvement Assn) Monthly testing, herd $4.75 herd fee plus $1.625 per cow.
Bi-monthly testing $3.00 herd fee plus $1.10 per cow
Minimum charges for up to 20 cows $37.25 and $13 respectively.

4. Cash Cropping Expenses

(a) Contract Heading

Wheat and Barley -	when	crop	runs	over	30	bu/ac	13½c	per	bu.
Oats	"	"	"	"	36	"	11½c	"	"
Peas and Lupins	"	"	"	"	38	"	17½c	"	"
					Bulk		16½c	"	"

Where heading is carried out on hill country bushel rates are increased by 20%.

Browntop, Clover and linseed, - hourly rates.

Grass seed - hourly rates or $4.00 per acre where crop runs under 30 bushel/acre. Over 30 bushels 12½c per bushel.

Hourly rates - minimum charges: Basis $1.10 per foot per hour.

Under 8 ft header $8.80 per hour
10 ft header $11.00
12 ft header $13.20
Self propelled header $10 to $17 per hour
Where peas, browntop, linseed, white clover and grass seed are direct headed an extra $1.00 per acre is charged.

Chaff Cutting:	Oatsheaf	22½	c	per	bag	for	full	gang (6 men)
	Straw Chaff	25	c	"	"	"	"	"
	Oaten hay	40	c	"	"	"	"	"
	Lucerne	45	c	"	"	"	"	"
	Basic rate	15	c	"	"	"	cutter and 1 man	
				2½ c per additional man				

Wheat Levies: Seed Fed. Farmers' Handbook page
Total levies amount of 69 cents per 50 bushels.

Contract Mowing

$3.25 per hour, less 25 cents large paddocks: average rate 2 hours per acre.

Potato digging $2.00 to $3.50 per hour: average rate ½ ac/hr
planting $5.00 per hour, two men two rows: average rate ½ to 1 acre per hour.

(b) Sacks (ex store)

The farmer pays 37.3 cents for 48" sacks & 30.8 c for 23" sacks but
gets a rebate of 25 cents for 48" " " 20 c " 23" " hence
Charge to farmer 12.3 " for 48" " " 10.8 c " 23" ".

Double brushed sacks (2nd hand)
Farmer pays 31 c for 48" sacks and 26 c for 23" sacks but gets
rebate of 20 c for 48" " " 17 c for 23" " , hence
Charge to farmer 11 c for 48" " " 9 c for 23" " .

Potato sacks - no rebate is paid. Usually second hand sacks are bought for 25 cents each.

The sacks containing the seeds bought in, would be kept for the seconds off the header and the seed held onto by the farmer for future sowings, so discount them in working out a budget.

A bale holds 250 x 23" sacks.

Capacities:

Ryegrass Perennial and Ariki	7 bu. M.D. in 48" sacks, 5 bu. F.D.
H.I Italian	6 bu. M.D. in 48" sacks, 4 bu. F.D.
Cocksfoot	100 lb " " 48" " 60 lb
Phalaris	140 lb in double 23" sacks, M.D. 120 lb single sacks F.D.
Timothy	140 lb in double 23" sacks, M.D. 100 lb single sacks F.D.
Clovers & Lucerne	160 lb in double 23" sacks, M.D. 120 lb single sacks F.D.
Wheat	3 bu. F.D. in 23" sacks
Barley	3¼ " " " " "
Oats	3½ " " " " "
Field Peas	3 " " " " "
Garden Peas	2½ " " " " "
Lupins	3 " " " " "
Linseed	1½ cwt
Potatoes	160 lb sack, 14 sacks per ton, 48" sacks.

Quantities of sacks required by farmer

The farmer requires sacks to transport his F.D. product to the store and having been Machine Dressed there, a heavier weight can be put into the bag. As indicated above, clovers, phalaris and timothy are delivered in single sacks but when Machine Dressed are put into double sacks.

Working on a M.D. basis the approximate number of sacks required by a farmer are as follows:

Ryegrass	1 sack per 3¾ bushels M.D.
Clovers	1 sack per 80 lb M.D.

Twine

Seaming - 96 threads per hank - 82½ c per 2 hanks

(c) Machine Dressing and Certification as at 1.2.68

Certification charges:

Entry fee. Only payable on potatoes, the charge being $2.00 per acre. Fields for certification must be entered before 20th November.

Machine dressing certificate charges covering sealing all lines of certified seed are:

Ryegrass all varieties	3 c bush M.D.
Cocksfoot, Timothy, Phalaris	2½c per 10 lb M.D.
Browntop, Clovers, Lucerne	1 c per 3 lb M.D.
Wheat, Barley, Oats	1 c per bush. M.D. seed lines

Purity and germination Certificate $2. per line, plus 10% when business is transacted through the merchant.

Seed certified under laboratory test - Ryegrass 2 c per bu
White Clover 1c per 4lb

North Canterbury Store and Dressing Charges

Grain and Seed

(except Milling Wheat and Malting Barley)

Consolidated Dressing and Store Handling Charges

(Receiving and delivering, sampling, weighing, dressing, brushing of sacks and disposal of offal).

		from 11.7.67
Ryegrass - Perennial, Italian & Short Rotation	per 100 lbs	$1.00
- each additional time through	per 100 lbs	0.50
Cocksfoot	per 100 lbs	3.10
Clovers - White, red, lucerne Alsike etc.	per 100 lbs	2.70
Wheat and Ryecorn	per 100 lbs	0.40
Barley	per 100 lbs	0.45
Field Peas and Lupins	per 100 lbs	0.45
Garden Peas and Lupins	per 100 lbs	0.60
Oats - Dressing and Clipping	per 100 lbs	0.55
Linseed	per 100 lbs	0.80
Grass seed - (Fine) - Browntop, Fescue, Dogstail & Timothy	per 100 lbs	2.70
Turnips, Chou Moellier, Kale and Mustard	per 100 lbs	2.70
Rape	per 100 lbs	2.00
Prairie Grass	per 100 lbs	4.00
Yarrow	per 100 lbs	5.25

Separating White Clover and Ryegrass	per sack	0.35
Separating Mixed Oats and Ryegrass	per sack	0.35
Ceresan or Agrosan Dusting	per bu.	0.12
Orthocide or Spergon Treating	per bu.	0.25
Blending Clovers & Blending Grass	per sack	0.60

Box Hire - 25/-

A box is deemed to hold 13 sacks of grasses.

A box is deemed to hold 18 sacks of grain.

Farmers usually get only their small seeds dressed, and in ordinary circumstances seed goes once through the dressing machines.

Field dressed ryegrasses dress out approx.		25% offal, leaving 75% M.D.
" " clovers " " "		33% offal, leaving 2/3 M.D.
" " timothy dressed " "		25% offal, leaving 75% M.D.
" " cocksfoot " "		25-33% offal, leaving 75-67% M.D.

In budgeting it is usual to discuss M.D. yields, thus for ease of working, the following examples have been calculated to show the relationship between actual costs incurred in dressing and what the cost is per M.D. product.

(a) Ryegrass

Twenty acres yield 30 bu/acre M.D. = 600 bu. M.D.
Actual quantity sent in for dressing was 800 bu (600 bu. is 75% of 800 bushels).
Consolidated charge, 16,000 at $1.00 % $160

= 26.6 cents bu. M.D.

Certification charges - 3c bushel M.D. 3

29.6 cents bu. M.D.

For ease of working use 30 cents per bushel M.D.

(b) White Clover

Twenty acres yielding 200 lb/acre M.D. = 4,000 lb M.D.
Actual quantity sent in for dressing was 6,000 lb F.D.
(M.D. = 2/3rds F.D.) No. of bags F.D. at 120 lb/bag = 50 bags

Consolidated charge 6,000 lbs at $2.70% = $162
Certification charge 4,000 lbs at 1c per 3 lb 13.33

$175.33

Total dressing and certification = 4.4 c per lb M.D.

Portable Seed Cleaners

Wheat, Barley, Oats	15 c per bushel in. Dressing and Pickling 16½ c bu. PLUS cost of pickle.
Peas and Lupins	15 c bushel in.
Grass seed	15 c.bushel in.
Clover, White and Red	2½c per lb in.
Cocksfoot, Dogstail and other seed	at $4.00 per hour
Cocksfoot	2½c per lb in.

5. Cultivation Contracts

Charges vary according to soil type: (charges per ac. for wheel tractor)

Ploughing	$2.60 to $3.00	tandem discing	$1.50
Skim ploughing	$2.60	Drilling	1.20
Swamp ploughing	up to $6.00	Mowing	1.60
Rolling	70 c	Hayraking	85c
Grubbing	1.00	Overdrilling	
Grubbing and Harrowing	1.25	(disc coulter)	2.00
Heavy Harrowing	60 c		
Harrowing	50 c		

6. Dairy Shed Expenses

Cow covers	$6.00 each lined;	$3.60 unlined	
Inflations	$1.85 doz.	changed 5 - 6 sets year or 1 set moulded cost $4.20/doz	
Milk rubbers	0.27 foot	"	1 set year
Air rubbers	0.175 "	"	½ set year
Claw rubbers	1.025 doz	"	2 sets year
Hose rings	1.70 doz	"	⅓ set year
Galvanised buckets	1.775		
Milk buckets	3.30 calf buckets	$1.175	
Oil - separator	1.20 gal. plant.	Teat salve $1.35/4lb tin	
Detergents - Alkali	0.216 lb	acid $0.45 lb	
Sterilizers - H.T.H.	.40 lb		

Brooms 14 inch $1.05 Separator brush set $7.00
Costs per cow milked - factory supply $2.00
- town milk supply $2.50

7. Electricity

Costs per cow milked - Factory supply shed (milking and water heater) $2.00 per cow
- Town milk supply shed (milking and water heater) $2.80 per cow
- Owner's household is excluded
- Power to outbuildings, whares, motors would total $25 - 50 per year.

8. Feed

(a) Haybaling contract rates

10 cents bale or 11 cents bale if sledged.

Cartage of haybales ex paddock to barn allow 8 cents bale
Baling twine 20 lb per ball $3.25 per ball
200 bales per ball = 1.6 cents per bale
Round bales use binder twine - 120 bales per ball
Binder twine 18 cents per lb; for 5 lb ball 90 cents per ball
= 0.7 cents per bale

(b) Forage Harvesting

1 Forage harvester, 1 tractor and 1 man $3.55 per hour.

(c) Stock foods

Hay prices, see "Income", page .....
Calf meal approximately $0.142 per lb
Moose nuts $74 to 86 per ton
Meat meal $75 per ton
Peerless sheep nuts $74.50 per ton
Molactrate block $2.20 per 50 lb block
Milk powders $0.08 per lb
Molasses $3.75 per 5 gals
Agricultural salt $2.35/cwt
Rock Salt $3.00 per 112 lb bag
Barley meal 59.25 per ton - $4.60 per 150 lb bag
Bran 43.50 per ton

9. Freight and Cartage

For transport charges see Federated Farmers' Handbook, pages .... (Note: Authorised increases).
Carting haybales from paddock to stack 7 cents per bale.

Railway charges, obtainable out of Railways Department Tariff book and Classification book, from 1 January 1968.

Stock Capacities of Railway Wagons

J. wagon 60 - 65 fat sheep; 75 fat lambs; 70 -80 store sheep; 90 - 100 store lambs

JC wagon plus $\frac{1}{3}$ J S wagon is double a J.

H wagon 8 fat steers; 12 store cattle

HC wagon plus $\frac{1}{3}$. HT wagon is double an H

Classified Rates are

H and J wagons	Class M
HC + JC "	M + ⅓
S + T "	M double rate

Produce

Fertilizers, Grain and Potatoes are Class E
Ryegrass is Class E plus 50%
Clovers are Class D
Wool is Class H

Rates in $ Miles	E per ton	E + 25% per ton	E + 50% per ton	H per bale	M per wagon
30	2.10	2.70	3.10	0.58	6.60
40	2.45	3.10	3.70	0.81	8.20
50	2.80	3.50	4.20	1.01	9.75
60	3.15	3.95	4.75	1.15	10.50
70	3.50	4.40	5.25	1.27	12.00
80	3.70	4.65	5.55	1.36	12.60
90	3.85	4.80	5.80	1.46	14.70
100	4.00	5.00	6.00	1.55	16.80
110	4.20	5.25	6.30	1.63	18.90
120	4.40	5.50	6.60	1.725	21.00
130	4.55	5.70	6.85	1.81	23.10

10 Fertilisers and Lime

(a) Price list of main lines of K.P. Fertiliser ex Hornby Works Jan 1968

N.P.K.		Farmers Nett Price O.T. Hornby Per Ton BULK
0 9 0	Superphosphate	24.40
0 8 0	Aerial Super	24.05
0 7 0	Serpentine Super	23.55
0 7 0	Reverted Super	22.45
6 4 0	Ammonia Serpentine Super	32.65
0 9 0	Boron Super	27.85
0 7 0	Boron Reverted Super	25.90
0 9 0	Cobalt Super	28.85
0 8 0	Cobalt Aerial Super	28.50
0 9 0	Copper Super	32.15
0 8 0	Copper Aerial Super	31.80
0 9 0	D.D.T. Super (Standard) Pellets	44.30
0 8 0	D.D.T. Super (Extra Strength) Pellets	54.10
0 8 0	D.D.T. Aerial Super (Standard) Pellets	44.00
0 8 0	D.D.T. Aerial Super (Extra Strength) Pellets	53.75
0 9 0	Molybdate Super	26.95
0 8 0	Molybdate Aerial Super	26.60
0 512	25% Potash Serpentine Super	28.00
0 416	33⅓% Potash Serpentine Super	29.10
0 8 0	Sulphur Super 200 lbs	28.55
0 7 0	Sulphur Super 400 lbs	31.65
0 7 0	Sulphur Aerial Super 200 lbs	28.25
0 6 0	Sulphur Aerial Super 400 lbs	31.40
0 9 0	Weedophos (standard) (M.C.P.A. Super)	31.10
0 9 0	Weedophos (extra strength) (M.C.P.A. Super)	36.00
0 9 0	Weedophos (Standard) (2, 4-D Super)	31.25
0 9 0	Weedophos (Extra Strength) 2, 4-D Super)	36.35
5 5 0	No. 1 Potato Manure	30.65
4 410	No. 2 Potato Manure	32.15
1 8 0	Turnip and Rape Manure	26.90
1 8 0	Boron Turnip and Rape Manure	29.30
0 048	Potassium Chloride (Muriate of Potash)	37.25
21 0 0	Ammonium Sulphate (Sulphate of Ammonia)	47.35
0 9 0	Oiled Wet Mix D.D.T. Super	35.45

All prices are subject to alteration without notice.

Bagged Fertiliser - We are able to supply bagged fertiliser either by Rail or Road at $2.80 per ton above Bulk Prices. Bagged Sulphate of Ammonia and Bagged Muriate of Potash subject to $4.15 above Bulk Price.

Spreading: Contract rates 50 cents per acre plus 10 cents per acre on worked ground.

Aerial Topdressing

Superphosphate under 12 ton minimum charge $8.00 per ton
over 12 ton minimum charge $6.50 per ton
Costs vary with distance and lift but an average figure would be $9.00 per ton. Use actual costs where available.

Lime $3.00 to $4.50 per ton at application rate of 1 ton per acre.

D.D.T. Prills 35 cents to 50 cents per acre depending on area.

11. Lime

Cost at works $2.00 per ton

(a) Spreading: 50 c per ac at ½ ton/ac on pasture
60 c " " " 1 ton/ac " "
80 c " " " 2 ton/ac " "
an extra 10 c per ac. on cultivated ground

Together with rail and cartage, total costs spread on paddocks are from $5.00 to $6.00 per ton.
Aerial spreading - good acreage going $4.00 per ton

(b) Lime Transport Assistance

Lime transport assistance applies only to lime applied for the first time on previously unlimed lime responsive soils.

Assistance available is

(a) by rail

1st 15 miles nil
next 100 miles 75% of rail charge

(b) by road after rail

1st 3 miles nil
next 7 miles 3.4 cents per ton per mile
additional mileage 5 cents per ton per mile

(c) by road direct from limeworks in areas served by rail

1st 3 miles nil
next 27 miles 3.4 cents per ton per mile
additional mileage nil

(d) by road direct from limeworks in area not served by rail

1st 3 miles nil
next 17 miles 3.4 cents per ton per mile
additional mileage 5 cents per ton per mile

12. Seeds - ex merchants' stores (subject to alteration)

Wheat	Aotea Uncertified	$2.208 nett.	Hilgendorf	$2.475 nett
	Standard	2.275 "		2.542 "
	Mother	2.308 "		2.575 "
	Arawa less $0.017 bushel			

Treating $0.012 per bushel
Sacks at $0.25 each = 8 cents bushel. Total extra cost - $0.20 bushel.

Barley	Uncertified	$1.60 nett	plus treating	$0.15 bushel
	Commercial	1.65 nett	sacks	0.09 "
	Mother	1.675 "	Total extras =	0.24 "

Oats — All varieties quoted at $1.35

Lupins — Borre and Bitter blue $2.00 bushel nett

Ryecorn — Both C.R.D. and N.A.I.B. cost about $1.60 bushel nett

Maize — $3.50 bushel (feed)

Peas — Contract price plus $0.35 bushel plus treating 0.25 bushel and sacks 0.275 bushel. Total extra 0.875 bushel.

Freezing Peas $5.00 bushel

Small Seeds

Retail prices from merchants are $0.15 to 0.20 per lb and $0.75 per bushel more than the price paid to the farmer - see "Income" page 48.

Root Seeds	Rape	$0.25 to 0.275	per lb	Chou moellier	$0.25
	Turnip	0.45	per lb	Fodder Beet -	
	Swede	0.45	per lb	unsegmented	0.75 per lb
				segmented	0.85 per lb

Aerial application

Variable according to quantity and distance ranging from 20 cents to 50 cents per acre.

Seed Requirements

With any seed that is not grown on contract it is usual to buy a quarter of the seed requirement, the other ¾ is retained from the crop that has been harvested that season; except for Algerian oats where for best germination usually 2 year old seed is sown. If a farmer is retaining a high grade on the Certification scale then he buys all of his grass seed. If using his own seed it will be treated.

13. Stock Selling Charges

(a) Addington Yard Fees

Sheep	4 cents
Baconers, Porkers	
Choppers	10 "
Store Pigs	5 "
Fat cattle	40 "
Store cattle	25 "
Dairy cattle	35 "
Calves	20 "
Bulls	$1.00

(b) Ewe Fairs

Kaikoura	5 cents
Amberley	5 "
Hawarden	8 "
Little River	5 "
Methven	5 "
Culverden	5 "
Sheffield	5 "
Oxford	5 "
Coalgate	7 "

(c) Addington Trucking Charges

Unloading or loading at Rail siding:
Cattle, sheep and pigs $0.45 per truck

Unloading sheep per lorry:

1. Lots up to 65 head $0.017 per head - max. of 0.45
2. Lots over 65 head 0.45 per 65 plus 1 c per head
3. Cattle 0.45 per truck

Loading facilities:

1. Lots up to 50 head 1 c per head - max. of 0.525
2. Lots over 50 but not over 100 $0.525 plus 1 c per head over 50 - maximum of $0.90
3. Lots over 100 $0.90 plus $0.075 per 100 in excess of 100

(d) Commissions on Stock sold through a Stock and Station agent

Private sales and saleyards		Clearing Sales	
Sheep - store and fat	3%	Sheep	3¾%
Cattle- " " "	3%	Horses	6 %
Cattle- dairy and bulls	5%	Store cattle	3 %
Pigs -	3¾%	Pigs	3¾%
Horses	6%	Dairy cows	5 %
Stud cattle and sheep	$0.10 in guin.	Implements and sundry	5 %

14. Shearing Expenses

(a) Shed Expenses

Wool packs ex store $1.50 each
Assess number used at 3 per 1,000 lb wool or per Bulletin 269
Twine 40 threads per hank. 65 c per hank = 7 c per bale
Glue 8 oz tin 30 c
Eartags, stamped $3.00 per 100 + 60 c if stamped
Emery paper - fine 45 c per sheet
- coarse 45 c per sheet
Shearing plant running expenses - Electricity $10.00
Full motors 20 cents/hour

(b) Wool Charges

Wool Board levy $0.007 per lb ($2.30 per av. bale)
Receiving, cataloguing, weighing- $0.0042 per lb
Commission 2%
Grouping $0.80 per bale.

Reclassing charges:

(i) Reclassing a binning fleece wool $0.0084 lb
(ii) Reclassing and binning oddments 0.0136 lb
(iii) Skirting and binning 0.013 lb

15. Trees

Planting (per 100)

Pinus $3.00 2 year trees
Larch)
Thuya Picarta)
Arizonica)
Benthami) $5.00 to $6.00 2 - 3 year trees
Poplars)
Oregons)
Cedar)

16. Weeds and Pest Control

(a) Weed Sprays

Spray	Cost/gal	Rates of Appl'n/ac	Cost/acre
MCPA	$4.50	1½ - 4 pints	84 cents to $2.25
24D (Ester)	5.10	1 - 4 pints	64 " to $2.55
MCPB	7.20	3 - 4 pints	$2.70 to 3.60
24DB (Lucerne)	8.90	2½ pints	$2.80
DNBP (peas)	8.85	3 - 4 pints	$3.32 to 4.425
Tok E-25 (brassicas)	8.00	5 - 7 pints	$5.00 to 7.00
245 T	8.50	1 gal. 2ft gorse	$8.50
TCA 90	0.35 lb	20 - 40 lbs	$7.00 to 14.00
Dalapon	0.80 lb	5 - 15 lbs	$4.00 to 12.00
Barban (wild oats)	20.00	2 - 3 pints	$5.00 to 7.50
Tordon granules	0.75		
Paraquat	24.00		

(b) Pests

Spray	Cost/gal.	Application	Cost/acre
Rogor 40	$23.73	12 - 16 fl oz	$1.80 to 2.40
Malathion 50%	9.50	1 - 2 pints	$1.20 to 2.40
Lindane 20%	7.50	2 pints (brassicas Protn)	$1.90
D.D.T. emulsion 20%	3.90	2 pints	$0.98

(c) Contract spraying charges (per ac. excluding materials)

$1.00 to $2.00 per acre depending on paddock area.

(d) Aerial spraying (excluding materials)

Crop spraying $2/ac for 10 gals/acre $5/ac for 40 gals/acre
Prill application 1 to 100 acs 50 c, 100 to 250 acs 40 c
250 to 500 acs 35 c, 500 + acs 30 c per ac.
Helicopter spraying $10.50 per load (approx. 1 ac) minimum charge $80.00

17. Repairs and Maintenance (for Lincoln College budget purposes allow)

Dwelling	¼ of 2½% (farm share)
Farm buildings	2½%
Piggeries	5%
Water supply	up to 5% depending on type of water
Implements and Plant	7½% - 10% depending on use
Wheel tractors	15 c per hour
Crawler tractors	35 c per hour
Trucks, Mobile Plant	10%
Roads, tracks and culverts	5% - 10% depending on locality
Yards and dip	5%

Fences - Sheep 20 c to 25 c per chain - (for the years expenditure)
Dairy 10 c to 15 c per chain - (on repairs and maintenance)

18. Vehicle or Motor Expenses

(a) Truck and Car

In both cases determine the mileage on farm business. Charge 5 cents per mile for farm truck for fuel, oil and registration. Charge 2½ cents per mile for car: this price covers fuel and oil plus ½ (registration, repairs, depreciation and interest)

(b) Fuels

Standard grade petrol $0.3517 per gallon less $0.186 per gallon for agricultural use.

Net price to farmers is $0.165 per gallon
Power Kerosene $0.227 per gallon (max. wholesale price)
Lighting Kerosene $0.208 per gallon in drums
Diesoline $0.158 per gallon
Lubricating Oils, Standard S.A.E. 30 engine oil.

Diesel $1.25 per gal. (12 gal drum)
Petrol $1.21 per gal. (12 gal drum)
Grease 27 cents per lb

(c) Delivery of bulk fuels

Free delivery up to approximately 10 miles from Christchurch
½ c. gallon " " " 20 miles from Christchurch
1 c. gallon " " " 30 miles from Christchurch

(d) Costs

Tractors: Fuel, oil and grease

Diesel tractor	35 c per hour
Petrol tractor	45 c per hour

Baler and Header Motors: Fuel, oil and grease

Diesel	25 c per hour
Petrol	35 c per hour

Auto Header:

Diesel	35 c per hour
Petrol	45 c per hour

Water pump motors and sundry motors: $0.15 to $0.25 per hour

Electrically powered motors: water supply $6.00

19. Administrative Expenses

(a) Accountancy

Accountants have a scale of fees based on input of time taken in compiling returns and services required by their clients.

Some of the reasons why fees vary considerably are:

(i) The adequacy of the presentation of farm records to the accountant by the farmer

(ii) The form of ownership - individual, company, or partnership, and if there is a trust account involved also.

(iii) The amount of information the farmer wants: advice on management, financial advice, trial balances, etc.

(iv) The degree of intensification of the farming operations.

(v) The amount of administration undertaken by the accountant. Budgeting control, receiver of all income, and payee of all expenditure for the farmer.

The fees definitely bear no relationship to the farmer's capital or net taxable balance, or turnover.

For Lincoln College budgeting purposes assess fees based on the total capital involved, the degree of intensification of the management, and the form of ownership.

$30 fee based on Total Capital of $20,000; increase fee $1.00 for every $1,000 of capital.

For ownership as a Company or as a Partnership use a base figure of $40.

For intensively farmed units, orchards, market gardens, poultry, intensive cropping, use a base figure of $40, for individual ownership.

(b) General Administration

Legal expenses incurred by an established farmer are negligible and can be discounted in budgeting.

Banking charges, stationery and postage vary with size of unit and intensive nature of the management, from $10 to $20.

(c) Telephone

(i) Rentals

Continuous Exchange	Individual	2	3	4	5	6-10	Party
Base rate up to 2 mls	$44.00	$38	$37	$36	$34	$30	
Plus mileage from exchange	$16 per mile				$2.80	$2.00	

(ii) Toll Calls

Charges in connection with farming activities vary with services available at the local centre, and degree of management involved. Charges range from $30.00 to $50.00 p.a.

(iii) Mail

Rural mail delivery charges are $2.00 per year
Post Office box rentals are variable but average $5.00 per year.

20. Standing Charges

(a) Insurances

Insurance against loss by fire and accident is not only a matter of prudence but in many cases it is compulsory. One of the implied covenants in a memorandum of mortgage is that the mortgagor shall insure and keep insured all buildings on the mortgaged land. The Worker's Compensation Amendment Act, 1943 makes it obligatory on the part of the employer to insure against his liability under the principal Act unless he is able to satisfy the Compensation Court that he has adequate financial resources to meet all probable claims.

In the case of fire insurance premiums vary according to the nature of the risk and the value of the buildings or assets insured, etc. Accident premiums vary with the nature of the work, etc. The following figures are from insurance companies as at 1.1. 68.

(i) Buildings (Tarrif Company's) per $100 of value

Dwellings	Brick IR	$0.092	Wood $0.25
Outbuildings	Brick - concrete or earth floor		$0.100
	Wood - concrete or earth floor		$0.229

(ii) Plant: per $100 of value

Fire only -	Farm machinery	$0.35
	Harvesting with power	0.525
	Harvesting without power	0.250
	Tractors	0.525

Comprehensive - Harvesting: self-propelled $7 for first $400 plus $0.75 per $100

Harvesting: tractor-drawn - above less 15%

Tractor: $8.40 for first $400 plus $1 per $200 thereafter.

A rebate of $\frac{1}{3}$ no claim bonuses are paid on tractor policies.

All these premiums plus $0.05 per $100 Earthquake and War Risk.

(iii) Crops: - per $100 of value

Fire only -	Crop	Hay
4 weeks	$0.50	
6 weeks	$0.575	$0.25 flat rate
2 months	$0.650	
3 months	$0.775	
6 months	$1.050	

(iv) Employer's Liability - based on wages paid

General farm work	$1.20 per $100
Shearing etc.	0.75 per $100
Tree felling	6.25 per $100
Harvesting and hay making	1.20 per $100

(v) Personal Accident (owner's personal cover)

Details vary, but a typical cover would be as follows:
Death $4,000. Total disablement from accident $30 per week.
Total disablement from disease $30 per week. Premium $34.50 p.a.

(vi) Public Liability - covers damage caused by stock, farm vehicles or fire but excludes registered motor vehicles.

Cover $2,000	- Premium	$2.25	Cover $10,000	- Premium	$3.75
" $4,000	- "	$2.70	" $20,000	- "	6.00
" $5,000	- "	$3.00	" $30,000	- "	13.25

(vii) Wool

From sheep's back to wool store - $0.15 per $100 gross value plus earthquake $0.004 per $100 gross value for 3 months.

Exclude personal and life insurance.

(b) Land Tax - assessed on the Unimproved Value as at 31 March

Rates of Tax:	On taxable values up to £10,000	1d in £1
	On the excess over £10,000 up to £15,000	2d in £1
	" " " " £15,000 " " £20,000	3d in £1
	" " " " £20,000	4d in £1

Exemptions

Ordinary exemption £6,000, it is reducible by £1 for every £1 excess of U.V. over £6,000, disappearing at £12,000. To ascertain the exemption, subtract the U.V. from £12,000.

Mortgage Exemption

Is £10,000 (maximum) where the U.V. does not exceed £10,000. Reducible by £1 for £1 of U.V. over £10,000, disappearing at £20,000. To ascertain the exemption, subtract the U.V. from £20,000.

If the ordinary exemption as computed above is greater than the amount of the mortgage owing, the ordinary exemption will be allowed. In 1967-68 a 50% rebate of Land Tax applies.

*Because no conversion rates to decimalization were available in the above, calculate in £.s.d. and convert the resultant to $.c.

(c) Rates

The main classes of rates are as follows:

(i) General County rates for the costs involved in administering the County.

(ii) Special rates for public bodies, e.g. Catchment, Drainage, and Hospital Boards.

(iii) Special rates for repayment of loans.

(iv) Water supply charges where stock water races are the source of water.

(v) Rabbit Board rates where the farm is in a killer district.

All counties rate on either the Capital or Unimproved Values or a combination of the two. Water and Rabbit rates are assessed on a per acre basis.

For budgeting purposes ask the farmer for the total rates.

(d) Interest

Interest rates vary with personal element, risks, and security offered. They also fluctuate with the Bank's interest charges. At present:

Flat Mortgage interest rates are	7%
Table Mortgage " " "	6½%
Bank overdraft " " "	6%
Stock and Station Agents interest rates are	7%

Current accounts interest:

For assessment of Working Capital see page 6, when budgeting use 6% on total Working Capital.

(e) Rent - charge actual rental paid by the farmer.

Rents on Crown Renewable Leases are 5½% of Crown Rental Value, on leases passed since 1956. Prior to this rents were 4½% of C.R.V. Rentals carry a ½% rebate for prompt payment, thus to calculate C.R.V. gross rentals must be ascertained.

Short term leases - rents usually assessed 5% of Capital Value

21. Development Expenditure

(a) Buildings

Dwellings - cost between $5.00 and $6.50 per sq. ft.
Hay barns - vary from $20 - $30 per 100 bales capacity
Woolsheds - vary from $2.00 - $4.00 per sq. ft.
Implement sheds - vary from $1.50 to $3.00 per sq. ft.
Garages - $3.00 per sq. ft.

(b) Fencing - approx. as they vary with shipments

No. 8 wire $9.10 per cwt 25 chain/cwt Barbed $11.65 per cwt 24 chain/cwt

12½ stl. wire $11.33 per cwt

Standards 5' $56 per 100
4'6" $50 per 100

Posts - Concrete $110.00 per 100 ex Christchurch

Oil & p.c.p. larch 3-4" diam. 55.00 per 100 ex Hanmer

Oil & p.c.p. larch 5-6" diam 100.00 per 100 ex Hanmer

Strainers: 7' Concrete $3.90 - Battens tanalised $10.20 per 100
metal 23.75 per 100
8' Concrete $4.80 - Gates wooden 9.80 12 ft
pipe 17.50 12 ft
7' oiled & p.c.p. $3.50 Blue gum stakes $26.00 per 100

Stays: Concrete $1.60 Netting $17.39 ave. depending on gauge for roll 5 chains and 3'6" high
Tanalised 9' $1.05

Contract fencing: $3.00 per chain to $6.00 per chain

(c) Water Supply

Piping: ½" Alkathene $3.60 per 100 feet
¾" " $6.58 per 100 feet
1" " $8.31 per 100 feet

Concrete troughs: 60 gallon - $11.00
40 gallon $9.50

Concrete tanks: 400 gallon $48.00 10 ft stand $48
600 gallon $64 " 52
800 gallon $76 " 60

(d) Drainage Costs

Field tiles (ex works Canterbury)

4 inch	$12.30 to $10.60 per 100 ft
6 inch	$17.60 to $16.00 per 100 ft

Trenching (for Tiles)

(hydraulic backactors)		$2.00 per foot chain
	e.g.	$5.00 per chain 2'6" deep
(boom and rotary diggers)		$2.70 to $3.50 per chain
	or	$5.25 per hour

Trenching (open drains)

(draglines and backactors)		20 c to 25 c per cubic yard
	or	$6.00 per hour

Mole draining - rate of work approximately 1 ac per hour
Contract rates $5 to $6 per acre.

(e) Bulk Storage of Wheat - Cost of Storage Buildings

1. Storage in an Existing Shed

(a) By Cross-tying opposite walls with steel rods and installing a moisture barrier of polythene sheet in or on the concrete floor. Extent of modification depends on the construction - Cost - negligible to $0.05/bu.

(b) By installing plywood bins - depends on shed floor being moisture and vermin proof. Available in 20 to 30 ton sizes. Cost $0.10 per bu.

(c) Wire mesh lined with scrim. Made commercially in 20 ton size. Scrim must be replaced annually. Cost $0.058 per bu.

2. New Dual Purpose Sheds

(a) Prefabricated - 45 x 20 x 12 ft stud and 6' gable. Steel implement shed. Erected by agents and fitted with eight 20 ton plywood bins on moisture proof concrete floor. Cost $0.375 per bushel.

(b) Large prefabricated 60 x 20 x 10 ft. Steel framed, galvanised iron, on both interior and exterior surfaces. Moisture proof concrete floor, sliding door. Erected by agents. Capacity 250 tons. Cost $0.233 per bushel.

3. Single Purpose Storage

(a) Corrugated Steel Silo - imported at moment, thus carry duty. Are permanent, weather and vermis proof - but of little use if grain growing is discontinued.

Cost 2,000 bushel capacity - $0.30 per bu.
3,100 bushel capacity - $0.25 per bu.
3,700 bushel capacity - $0.233 per bu.

(b) Plywood bin on a sledge base. Same as mentioned before but on a sledge base.

Cost 20 ton bin with 17 oz canvas cover on wooden sledge base - approx. $140 or $0.175 per bushel.
30 ton bin - approximately $200 or $0.158 per bushel.

22. Depreciation (see Appendix A)

Depreciation is the diminution in the value of an asset, caused by lapse of time despite maintenance charges being met. The amount to be written off is largely a matter of opinion, as it is difficult to assess the life of an item of plant when it is purchased.

The normal depreciation rates allowed are:

Dwelling	$\frac{1}{4}$ of $2\frac{1}{2}\%$ (farm share)
Farm buildings	$2\frac{1}{2}\%$
Plant and Machinery (excluding motor vehicles)	10% diminishing value (D.V.)
Motor vehicles - Headers Tractors, Balers, Trucks include all implements and machines drawn behind a tractor and driven by the tractor p.t.o	20% D.V.
Motor car - if half used privately (should be included in $0.075 mile)	$\frac{1}{2}$ of 20% D.V.
Water supply	5%

23. Wages of Management

Based on a manager's salary plus 1% of total capital.

Town Milk Dairy	$1,550	Sheep and Mixed Cropping	$1,350
Factory Supply Dairy	$1,450		

24. Farm Taxation Notes

1. Exemptions:

Personal	$936	
Wife (with no income)	312	
Each dependent child	156	
Life insurance premiums paid	650	for non contribution to subsidised superannuation scheme.

2. Assessable Income

All return from sale of livestock and farm produce thus:

(a) Value of farm produce used in farm house.

(b) Prize money won at A. and P. Show (Entrance fees and other expenses can be claimed as a deduction).

(c) Stud fees received.

(d) Compensation for condemned livestock.

(e) Rent for land leased out.

(f) Wool on hand. (Valuation of such is binding on taxpayer and if sale price exceeds the valuation re surplus is deemed revenue in the year of the sale).

(g) Income from sale of timber from shelter trees and other trees. (May be spread over period of five years (5 years).

(h) Livestock Valuation. An increase in the value of the livestock at the end of the farming year is treated as revenue and a decrease in the farm expenditure.

3. A. Allowable Expenditure - General

(a) Land Tax. (On land producing the assessable farm income).

(b) Legal expenses

(c) Car Expenses (three quarters of car expenses - fuel, repairs and insurance, registration - where both car and truck used, the former is reduced to 50%).

(d) Interest and rent.

(e) Rations. Where food and lodging provided for employees, an actual cost cannot be computed - $2.00 per week, per man allowable.

(f) Fire Damage - Where farm generally subject to dry summer conditions. Expenditure in repairing damage deductible.

B. Allowable Expenses for Development Work

Total Deductible Expenditure: can be spread over four years from year of expenditure.

(1) eradication and extermination of pests, both animal and vegetable,

(2) clearing land of timber, stumps, scrub or undergrowth,

(3) destruction of weeds,

(4) preparation of land for farming, draining swamp,

(5) constructing access tracks or roads, dams, stopbanks, irrigation or stream diversion channels,

(6) preventing or combating erosion,

(7) constructing airstrips, fences, sinking bores, etc., but not including troughs and pumps.

C. Allowable Expenses for Farm Forestry

In the return of income in the year incurred.

(1) Loan interest, costs over and above expenditure covered by loan. Loan repayments.

(2) Costs of maintaining and planting trees planted to provide shelter (including fencing costs).

Depreciation on Farm Assets

D.V. - diminishing value
C.P. - cost price

Asset	%
A. Agricultural Plant and Equipment	
Tractor drawn implements	10 D.V.
Self propelled equipment	20 D.V.
Beehives	Standard Values
Bridges	
Wooden	2½ C.P.
Other	2 C.P.

Asset	%
Buildings	
Initial - for employee accommodation erections	20 C.P.
- for new farm buildings other than dwellings	20 C.P.
Reinforced Concrete	1 C.P.) = $2\frac{1}{2}$ D.V.
Brick, concrete or stone	2 C.P.)
Glass Houses	
Wooden framed	5 C.P.
Metal framed	3 C.P.
Pig Styes	
All concrete	5 C.P.
Timber and concrete	6 C.P.
Timber only	10 C.P.
Portable Huts	10 C.P.
Bulldozers	20 D.V.
Carts, drays, wagons	10 D.V.
Concrete mixers	15 D.V.
Dams and Reservoirs - maintenance	
" " " - reinforced concrete	1 C.P.
Dips - spray (including concrete tanks)	10 D.V.
Fences - ordinary - maintenance - electric	10 D.V.
Haybalers and Header Harvesters engine	20 D.V.
Limespreaders - bulk	10 D.V.
Loose tools - (single item not to exceed $60)	Replacements Depn.
Motor vehicles, trucks, scooters	20 D.V.
Pipelines - farm	Main finance
Chain saws	50 D.V.
Grain silos	5 D.V.
Sprayers	10 D.V.
Tractors	20 D.V.
Windmills	10 D.V.
Motor cars (a) with both car and truck half of	20 D.V.
(b) car only, $\frac{3}{4}$ of	20 D.V.
Farm house on $\frac{1}{4}$ of cost price of	appropriate rate

B. Special Depreciation

On plant and machinery, excluding certain motor vehicles, acquired; and new farm buildings or extensions, excluding homesteads but including employee accommodation -

1. assets costing less than $2,000 20% allowance 1st year

2. assets costing between $2,001 to $4,000 10% 1st year, 10% 2nd year.

3. assets costing over $4,001 either 6%, 5%, 4%, 3%, 2% consecutive years or 10%, 5%, 3%, 2% in consecutive years.